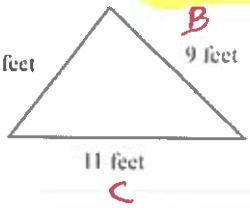
Student: _____ **Instructor:** Alfredo Alvarez **Assignment:** MATH7-8THGRADEWARMUP149M
Date: _____ **Course:** Math 0410 / 0320 Alvarez

1. Find the perimeter of the figure.

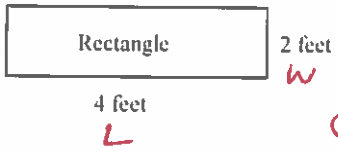


$P = A + B + C$
$P = 6 + 9 + 11$
$P = 15 + 11$
$P = 26$

The perimeter is [ ] feet.

Answer: 26

2. Find the perimeter of the figure.

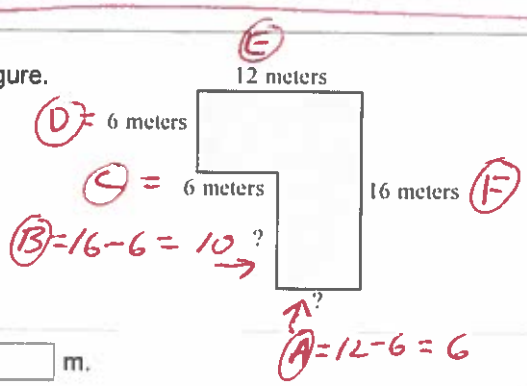


$P = 2L + 2W$
$P = 2(4) + 2(2)$
$P = 8 + 4$
$P = 12$

[ ] ft

Answer: 12

3. Find the perimeter of the figure.

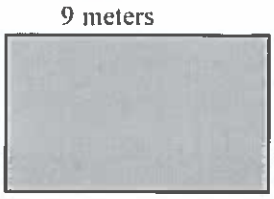


$P = A + B + C + D + E + F$
$P = 6 + 10 + 6 + 6 + 12 + 16$
$P = 16 + 6 + 6 + 12 + 16$
$P = 22 + 6 + 12 + 16$
$P = 28 + 12 + 16$
$P = 40 + 16$
$P = 56$

The perimeter is [ ] m.

Answer: 56

4. Find the area and the perimeter of the rectangle shown to the right.



L
W

The area of the rectangle is [ ] (1) [ ]

The perimeter of the rectangle is [ ] (2) [ ]

(1) ○ cubic meters. ○ square meters. ○ meters.

(2) ○ cubic meters. ○ square meters. ○ meters.

$A = LW$
$A = (9)(6)$
$A = 54$

$P = 2L + 2W$
$P = 2(9) + 2(6)$
$P = 18 + 12$
$P = 30$

Answers 54

(1) square meters.

30

(2) meters.

5. One triple fudge brownie contains 101 calories. How many calories are in 12 triple fudge brownies?

[ ] calories

$\frac{1}{101} = \frac{12}{N}$

$1N = 101(12)$ cross mult

$N = 1212$

101×12

202
101
1212

Answer: 1212

6. Find the average value of the following list of numbers.

10, 25, 28, 27, 11, 13

The average value is [ ].

$\frac{10+11+13+25+27+28}{6} =$

$\frac{114}{6} =$

$19 =$

$6\overline{)114}$
$-(6)$
54
$-(54)$
0 rem

Answer: 19

7. Simplify.

$27 + 8 \cdot 7$

PEMDAS

$27 + 8 \cdot 7 =$
$27 + 56 =$
$83 =$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ A. $27 + 8 \cdot 7 =$ _____

○ B. The expression is undefined.

$27 + 56$
83

Answer: A. $27 + 8 \cdot 7 =$ **83**

8. Simplify.

PEMDAS

$32 \div 8 - 2$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$32 \div 8 - 2 =$

$4 - 2 =$

$2 =$

- A. $32 \div 8 - 2 =$ _____
- B. The expression is undefined.

Answer: A. $32 \div 8 - 2 =$ **2**

9. Simplify.

PEMDAS

$4 \cdot 3 + 8 \cdot 8$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$4 \cdot 3 + 8 \cdot 8 =$

$12 + 8 \cdot 8 =$

$12 + 64 =$

$76 =$

$12 + 64 = 76$

- A. $4 \cdot 3 + 8 \cdot 8 =$ _____
- B. The expression is undefined.

Answer: A. $4 \cdot 3 + 8 \cdot 8 =$ **76**

10. Simplify.

PEMDAS

$(4 + 5) \cdot (6 - 4)$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$(4+5) \cdot (6-4) =$

$(9) \cdot (2) =$

$9 \cdot 2 =$

$18 =$

- A. $(4 + 5) \cdot (6 - 4) =$ _____
- B. The expression is undefined.

Answer: A. $(4 + 5) \cdot (6 - 4) =$ **18**

11. Simplify.

PEMDAS

$3^4 - [21 - (11 - 6)]$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$3^4 - [21 - (11-6)] =$

$3^4 - [21 - (5)] =$

$3^4 - [21 - 5] =$

$3^4 - [16] =$

$3^4 - 16 =$

$3 \cdot 3 \cdot 3 \cdot 3 - 16 =$

$81 - 16 =$

$65 =$

- A. $3^4 - [21 - (11 - 6)] =$ _____
- B. The expression is undefined.

Answer: A. $3^4 - [21 - (11 - 6)] =$ **65**

12. Evaluate the expression for z = 2.

$5 + 6z$

$5 + 6z =$ ☐

Answer: 17

PEMDAS

$5+6z=$
$5+6(2)=$
$5+12=$
$17=$

13. Evaluate the expression for x = 4 and z = 5.

$5xz - 4x$

$5xz - 4x =$ ☐

Answer: 84

PEMDAS

100
−16
84

$5xz-4x=$
$5(4)(5)-4(4)=$
$5(20)-4(4)=$
$100-16=$
$84=$

14. Evaluate the expression for x = 3 and z = 5.

$7x - z$

$7x - z =$ ☐

Answer: 16

PEMDAS

$7x-z=$
$7(3)-(5)=$
$21-5=$
$16=$

15. Evaluate the expression for x = 11, y = 3, and z = 4.

$\frac{x + 3y}{z}$

$\frac{x + 3y}{z} =$ ☐

Answer: 5

PEMDAS

$\frac{x+3y}{z}=$
$\frac{(11)+3(3)}{(4)}=$
$\frac{11+9}{4}=$
$\frac{20}{4}=$
$5=$

16. Evaluate the algebraic expression for the given value.

$x^2 - 2x + 8$, for x = 5

When x = 5, $x^2 - 2x + 8 =$ ☐.
(Simplify your answer.)

Answer: 23

PEMDAS

$x^2-2x+8=$
$(5)^2-2(5)+8=$
$(5)(5)-2(5)+8=$
$25-10+8=$
$15+8=$
$23=$

17. Simplify.

$4 + 6 \cdot 2 - 11$

$4 + 6 \cdot 2 - 11 =$ ☐

Answer: 5

PEMDAS

$4+6\cdot2-11=$
$4+12-11=$
$16-11=$
$5=$

18. Solve. Check your solution.

x + 9 = 14

The solution is x = [ ].

Answer: 5

$x+9=14$

$x+9-9=14-9$

$x=5$

Check

$x+9=14$

$(5)+9=14$

$5+9=14$

$14=14$ Good

19. Solve. Check your solution.

1 = y − 2

The solution is y = [ ].

Answer: 3

$1=y-2$

$1+2=y-2+2$

$3=y$

Check

$1=y-2$

$1=(3)-2$

$1=3-2$

$1=1$ Good

20. Solve.

9x = 54

The solution is x = [ ].

Answer: 6

$9x=54$

$\frac{9x}{9}=\frac{54}{9}$

$x=6$

Check

$9x=54$

$9(6)=54$

$54=54$ Good

21. Solve the equation. First combine any like terms on each side of the equation.

x − 8 = − 3 + 4

The solution is x = [ ].

Answer: 9

$x-8=-3+4$

$x-8=1$

$x-8+8=1+8$

$x=9$

Check

$x-8=-3+4$

$(9)-8=-3+4$

$9-8=-3+4$

$1=1$ Good

22. Solve the following equation.

3x − 18 = 0

x = [ ]

Answer: 6

$3x-18=0$

$3x-18+18=0+18$

$3x=18$

$\frac{3x}{3}=\frac{18}{3}$

$x=6$

Check

$3x-18=0$

$3(6)-18=0$

$18-18=0$

$0=0$ Good

23. Solve the equation.

5n + 15 = 45

n = [ ]

Answer: 6

$5n+15=45$

$5n+15-15=45-15$

$5n=30$

$\frac{5n}{5}=\frac{30}{5}$

$n=6$

Check

$5n+15=45$

$5(6)+15=45$

$30+15=45$

$45=45$

Good

24. Find the prime factorization of the following number.

102

The prime factorization of 102 is ____.

Answer: $3 \cdot 2 \cdot 17$

Primes 2, 3, 5, 7, 11, 13, 17...

2 | 102
3 | 51
17 | 17
1

$102 = 2 \cdot 3 \cdot 17$

25. Divide $-\frac{4}{5} \div 8$. Write the quotient in simplest form.

$-\frac{4}{5} \div 8 =$ ____ (Type an integer or a fraction.)

Answer: $-\frac{1}{10}$

$-\frac{4}{5} \div 8$

$-\frac{4}{5} \div \frac{8}{1} =$

$-\frac{4}{5} \cdot \frac{1}{8} =$

$\frac{(-1)(2)(2)}{(5)} \cdot \frac{1}{(2)(2)(2)} =$

$\frac{(-1)(2)(2)}{(5)} \cdot \frac{1}{(2)(2)(2)} =$

$\frac{(-1)(1)}{(5)(2)} = \frac{-1}{10}$

26. Perform the indicated operation.

$4 \div \frac{7}{12}$

$4 \div \frac{7}{12} =$ ____ (Simplify your answer.)

Answer: $\frac{48}{7}$

$4 \div \frac{7}{12} =$

$\frac{4}{1} \div \frac{7}{12} =$

$\frac{4}{1} \cdot \frac{12}{7} =$

$\frac{48}{7} =$

OR $4 \div \frac{7}{12} =$

$\frac{4}{1} \div \frac{7}{12} =$

$\frac{(4)}{(1)} \cdot \frac{(12)}{(7)} =$

$\frac{(2)(2)}{(1)} \cdot \frac{(2)(2)(3)}{7} = \frac{(2)(2)(2)(2)(3)}{7} =$

$\frac{48}{7}$

Primes 2, 3, 5, 7, 11

2 | 4 | 2 | 12
2 | 2 | 2 | 6
1 | | 3 | 3
1 | | 1 |

27. Perform the indicated operation.

$\frac{8}{11} \div \frac{7}{55}$

$\frac{8}{11} \div \frac{7}{55} =$ ____ (Type an integer or a simplified fraction.)

Answer: $\frac{40}{7}$

$\frac{8}{11} \div \frac{7}{55} =$

$\frac{8}{11} \cdot \frac{55}{7} =$

$\frac{(2)(2)(2)}{(11)} \cdot \frac{(5)(11)}{(7)} =$

$\frac{(2)(2)(2)(5)(11)}{7} =$

$\frac{40}{7}$

Primes 2, 3, 5, 7, 11

2 | 8 | 5 | 55
2 | 4 | 11 | 11
2 | 2 | 1 | 1
1 | 1 | | |

28. Find $\frac{1}{4}$ of 12.

$\frac{1}{4}$ of 12 is ____. (Simplify your answer. Type a whole number, fraction, or mixed number.)

Answer: 3

$\frac{1}{4}(12) =$

$\frac{1}{4} \cdot \frac{12}{1} =$

$\frac{1}{(2)(2)} \cdot \frac{(2)(2)(3)}{1} =$

$\frac{1}{(2)(2)} \cdot \frac{(2)(2)(3)}{1} =$

$\frac{3}{1} = 3$

Primes 2, 3, 5, 7, 11, 13, ...

2 | 4 | 2 | 12
2 | 2 | 2 | 6
1 | | 3 | 3
1 | | 1 |

29. Find $\frac{7}{9}$ of 54. Write the answer in simplest form.

$\frac{7}{9}$ of 54 is [ ]. (Simplify your answer.)

Answer: 42

$\frac{7}{9}(54) =$

$\frac{7}{9} \cdot \frac{54}{1} =$

$\frac{7}{(3)(3)} \cdot \frac{(2)(3)(3)(3)}{1} = \frac{(7)(2)(3)}{1} = \frac{42}{1} = 42$

Primes 2, 3, 5, 7, 11, 13, 17

3|9 2|54
3|3 3|27
1 3|9
3|3
1

30. Subtract and check the following.

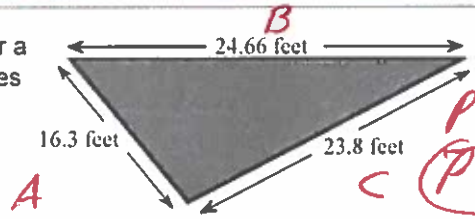
14 − 1.4

14 − 1.4 = [ ] (Type an integer or a decimal.)

Answer: 12.6

14.0
−1.4
12.6

31. A landscape architect is planning a border for a flower garden shaped like a triangle. The sides of the garden measure 16.3 feet, 24.66 feet, and 23.8 feet. Find the amount of border material needed.



The amount of border material needed is [ ] feet.
(Type an integer or a decimal.)

Answer: 64.76

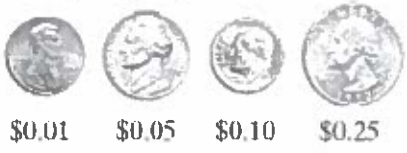
$P = A + B + C$

$P = 16.3 + 24.66 + 23.8$

$P = 64.76$

1 1
16.30
24.66
+ 23.80
64.76

32. Use the values of the coins given below. Write the value of the group of coins shown to the right. To do so, it is usually easiest to start with the coin(s) of greatest value and end with the coin(s) of least value.



The total value of the group is $[ ].

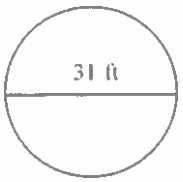
Answer: 1.10

.25 .10 .05
x 3 x 2 x 3
.75 .20 .15

1
.75
.20
+ .15
1.10

1.10

33. Find the circumference of the circle in terms of π. Then use the approximation 3.14 for π and approximate the circumference.



$C = \pi D$
$C = \pi(31)$
$C = 31\pi$

$C = 3.14\,D$
$C = 3.14(31)$
$C = 97.34$

a. Find the circumference of the circle in terms of π.

The exact circumference is [ ] ft.

b. Find the circumference of the circle using 3.14 as an approximation for π.

The approximate circumference is [ ] ft. (Round to the nearest hundredth as needed.)

$3.14 \times 31 = 314 + 942 = 97.34$

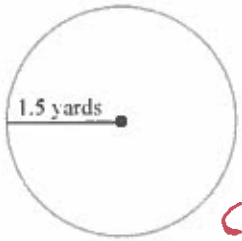
Answers 31π

97.34

34. Find the circumference of the circle in terms of π. Then use the approximation 3.14 for π and approximate the circumference.

$1.5 \times 2 = 3.0$

$r = 1.5$
$D = 2r$
$D = 2(1.5)$
$D = 3.0$



$C = \pi D$
$C = \pi(3.0)$
$C = 3.0\pi$

$C = 3.14\,D$
$C = 3.14(3.0)$
$C = 9.420$

a. Find the circumference of the circle in terms of π.

The exact circumference is [ ] yd.

b. Find the circumference of the circle using 3.14 as an approximation for π.

The approximate circumference is [ ] yd. (Round to the nearest thousandth as needed.)

$3.14 \times 3.0 = 000 + 942 = 9.420$

Answers 3.0π

9.420

35. A 1-ounce serving of cream cheese contains 6.7 grams of saturated fat. How much saturated fat is in 7 ounces of cream cheese?

[ ] g

$\frac{1}{6.7} = \frac{7}{N}$

$1(N) = 6.7(7)$ cross mult
$N = 46.9$

$6.7 \times 7 = 46.9$

Answer: 46.9

36. The screen of a portable digital device is a rectangle that measures 4.5 inches by 2.6 inches. Find the area of the screen.

The area is [ ] square inches. (Type an integer or a decimal.)

Answer: 11.7

$L = 4.5$ $A = LW$
$W = 2.6$ $A = (4.5)(2.6)$
$A = 11.7$

$4.5 \times 2.6 = 270 + 90 = 1170$

37. The diameter of a ferris wheel is 160 feet. Find its circumference. Give an exact answer and an approximation using 3.14 for π.

The circumference is [ ] feet.
(Type an exact answer in terms of π.)

The circumference is approximately [ ] feet.
(Type an integer or a decimal. Round to the nearest hundredth as needed.)

Answers 160π

502.40

$C = \pi D$ $D = 160$
$C = \pi(160)$
$C = 160\pi$

$C = 3.14D$
$C = 3.14(160)$
$C = 502.40$

$3.14 \times 160 = 1000 + 1884 + 314 = 502.40$

38. A meter is a unit of length approximately equal to 39.37 inches. If someone is 1.98 meters tall, what is his or her approximate height in inches?

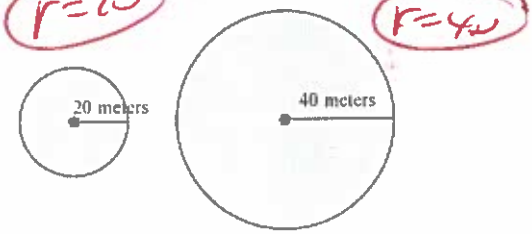
Using the given conversion, someone who is 1.98 meters tall has a height of [ ] inches.
(Type an integer or a decimal.)

Answer: 77.9526

$\frac{1}{39.37} = \frac{1.98}{N}$
$1(N) = 39.37(1.98)$ cross mult
$N = 77.9526$

39. Consider the circles at the right.

$C = \pi D$ OR $C = 2\pi r$
$C = 3.14D$ OR $C = 2(3.14)r$



a. Approximate the circumference of each circle. Use $\pi = 3.14$.

The circumference of the smaller circle is approximately [ ] meters.
(Round to the nearest hundredth as needed.)
The circumference of the larger circle is approximately [ ] meters.
(Round to the nearest hundredth as needed.)

$r = 20$ $C = 2(3.14)(20)$
$C = 6.28(20)$
$C = 125.60$

$r = 40$
$C = 2(3.14(40)$
$C = 6.28(40)$
$C = 251.20$

b. If the radius of a circle is doubled, is its corresponding circumference also doubled?

- Yes
- No

double → yes

Answers 125.60

251.20

Yes

40. Find the decimal equivalent of the following fraction.

$\frac{11}{20}$

$\frac{11}{20} =$ [ ]

Answer: 0.55

.55
20 | 11.00
−(100)
100
−(100)
0

41. Solve the following equation.

$9.1x = -75.53$

$x =$ [ ] (Type an integer or a decimal.)

Answer: −8.3

$9.1x = -75.53$

$\frac{9.1x}{9.1} = \frac{-75.53}{9.1}$

$x = -8.3$

8.3
9.1 | 75.53
728
273
−(273)
0
rem

42. Solve the following equation.

$4.6y + 7.1 = 6.6y - 4.6$

The solution is [ ]. (Type an integer or a decimal.)

Answer: 5.85

$4.6y + 7.1 - 7.1 = 6.6y - 4.6 - 7.1$

$4.6y = 6.6y - 11.7$

$4.6y - 6.6y = 6.6y - 11.7 - 6.6y$

$-2y = -11.7$

$\frac{-2y}{-2} = \frac{-11.7}{-2}$

$y = 5.85$

43. Find the mean, median, and mode for the following set of numbers. If necessary, round the mean to one decimal place.

15, 22, 23, 18, 12 ⟶ 12, 15, 18, 22, 23

The mean is [ ].
(Type an integer or decimal rounded to one decimal place as needed. Use a comma to separate answers as needed.)

The median is [ ].
(Type an integer or decimal rounded to one decimal place as needed. Use a comma to separate answers as needed.)

Find the mode. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The mode is [ ].
  (Type an integer or decimal rounded to one decimal place as needed. Use a comma to separate answers as needed.)
- B. There is no mode.

Answers 18

18

B. There is no mode.

$\frac{12+15+18+22+23}{5} = \frac{90}{5} = 18$ ← Mean

12, 15, 18, 22, 23 ← median

no mode

44. Solve the proportion.

$\frac{5}{8} = \frac{x}{24}$

x = [ ] (Type an integer or a simplified fraction.)

Answer: 15

$\frac{5}{8} = \frac{x}{24}$

$5(24) = 8(x)$ cross mult

$120 = 8x$

$\frac{120}{8} = \frac{8x}{8}$

$15 = x$

45. A stereo normally priced at $880 is on sale for 40% off. Find the discount and the sale price.

The discount is $[ ].

The sale price is $[ ].

Answers 352.00

528.00

$A = P - PD$

$A = 880 - 880(.40)$

$A = 880 - 352$

$A = 528$

discount = $352

SALE Price = $528

46. A company borrows $54,000 for 3 years at a simple interest rate of 5.5%. Find the interest paid on the loan and the total amount paid.

The interest paid on the loan is $[ ].

The total amount paid is $[ ].

Answers 8,910

62,910

$A = P + PRT$

$A = 54000 + 54000(.055)(3)$

$A = 54000 + 54000(.165)$

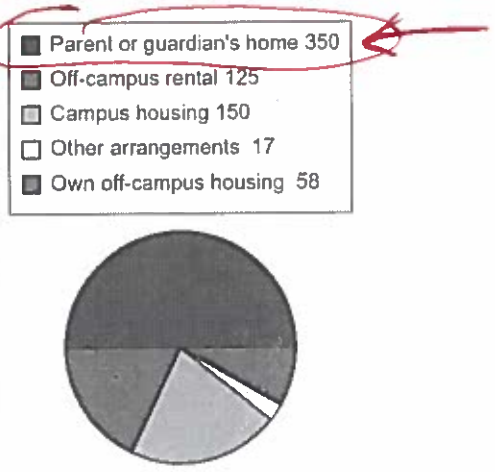
$A = 54000 + 8910$

$A = 62910$

interest = $8910

Total amount = $62910

47. The circle graph is a result of surveying 700 college students. They were asked where they live while attending college. Use this graph to find where most of these college students live.

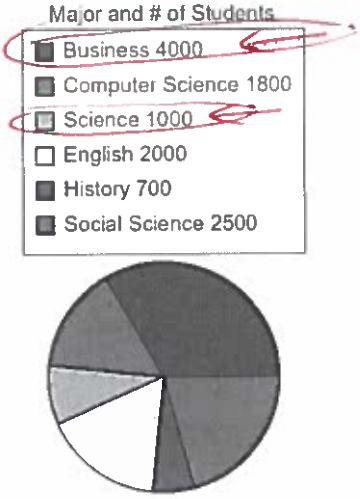


Choose the correct answer below.

- A. Off-campus rental
- B. Campus housing
- C. Own off-campus housing
- D. Other arrangements
- E. Parent or guardian's home

Answer: E. Parent or guardian's home

48. The circle graph shows the number of students at Rockford College who are enrolled in various majors. Find the ratio of Science majors to Business majors.

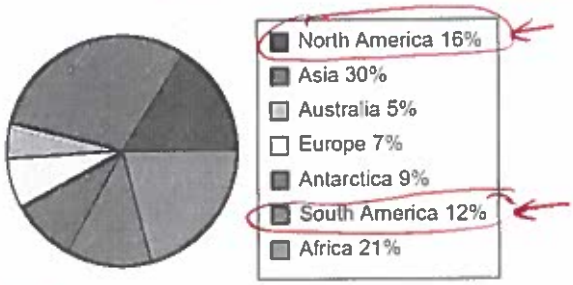


The ratio is ☐.
(Type an integer or a simplified fraction.)

Science / Business = 1000 / 4000 = 1/4

Answer: $\frac{1}{4}$

49. The following circle graph shows the relative sizes of the continents of Earth.



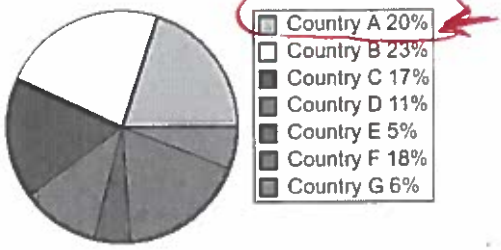
What percent of the land on Earth is accounted for by South America and North America together?

16% + 12% = 28%

☐%

Answer: 28

50. The total amount of land of some particular countries is approximately 64,000,000 square miles. Use the graph to find the area of the Country A.

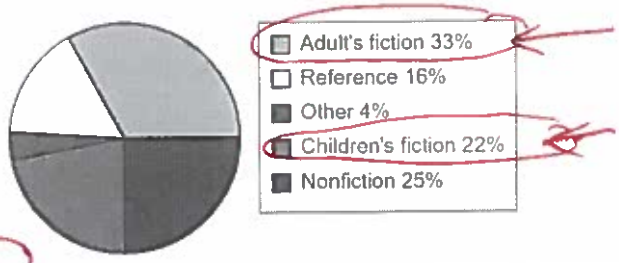


The area of the Country A is approximately ☐ square miles.

64,000,000 × .20 = 12,800,000

Answer: 12,800,000

51. The circle graph to the right shows the percent of the types of books available in a library.



What percent of books are classified as some type of fiction?

33 %
+ 22 %
55 %

The percent of books which are classified as some type of fiction is ____%.

Answer: 55

52. Find the square root.

$\sqrt{9}$ = ____

$\sqrt{9}$

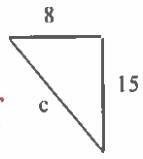
$\sqrt{9} =$

$3 =$

$9 = 3 \cdot 3$

Answer: 3

53. Find the length of the third side of the right triangle.



a = leg
b = leg
c = hypotenuse

$a^2 + b^2 = c^2$
$(8)^2 + (15)^2 = c^2$
$64 + 225 = c^2$
$289 = c^2$
$\sqrt{289} = \sqrt{c^2}$
$17 = c$

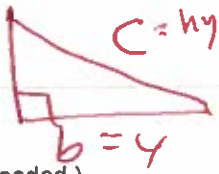
The length of the third side is ____.

Answer: 17

54. Sketch the right triangle and find the length of the side not given. If necessary, approximate the length to the nearest thousandth.

a b

leg = 3, leg = 4



$a^2 + b^2 = c^2$
$(3)^2 + (4)^2 = c^2$
$9 + 16 = c^2$
$25 = c^2$
$\sqrt{25} = \sqrt{c^2}$
$5 = c$

What is the length of the side not given?

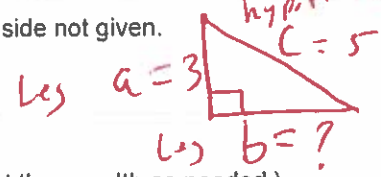
____ (Round to the nearest thousandth as needed.)

Answer: 5

55. Sketch the right triangle and find the length of the side not given.

a

leg = 3, hypotenuse = 5

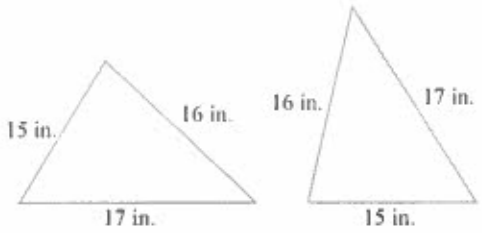


$a^2 + b^2 = c^2$
$(3)^2 + b^2 = (5)^2$
$9 + b^2 = 25$
$9 + b^2 - 9 = 25 - 9$
$b^2 = 16$
$\sqrt{b^2} = \sqrt{16}$
$b = 4$

The unknown length is ____.
(Type an integer or decimal rounded to the nearest thousandth as needed.)

Answer: 4

56. Determine whether the pair of triangles is congruent. If congruent, state the reason why, such as SSS, SAS, or ASA.

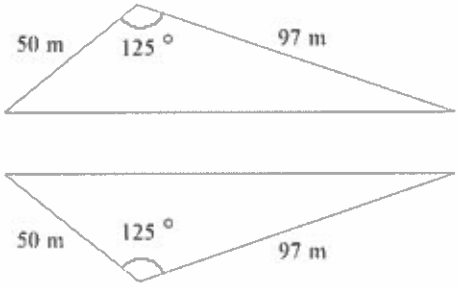


Choose the correct answer below.

- ✓ Congruent by SSS
- ○ Congruent by ASA
- ○ Congruent by SAS
- ○ Not congruent

Answer: Congruent by SSS

57. Determine whether the pair of triangles is congruent. If congruent, state the reason why, such as SSS, SAS, or ASA.

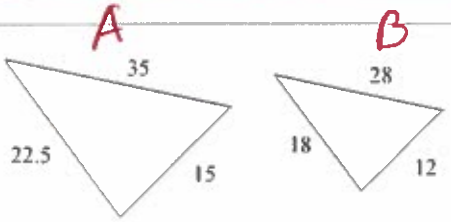


Choose the correct answer below.

- ○ Congruent by ASA
- ○ Congruent by SSS
- ✓ Congruent by SAS
- ○ Not congruent

Answer: Congruent by SAS

58. Find the ratio of the corresponding sides of the given similar triangles.



The ratio of the corresponding sides of the first triangle to the second triangle is _____.
(Type the ratio as a simplified fraction.)

Answer: $\frac{5}{4}$

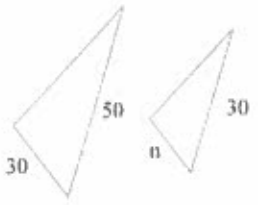
$\frac{A}{B} =$

$\frac{35}{28} =$

$\frac{7(5)}{7(4)} =$

$\frac{5}{4} =$

59. Given that the pair of triangles is similar, find the length of the side labeled n.



$\frac{50}{30} = \frac{30}{N}$ cross mult

$50(N) = 30(30)$

$50N = 900$

$\frac{50N}{50} = \frac{900}{50}$

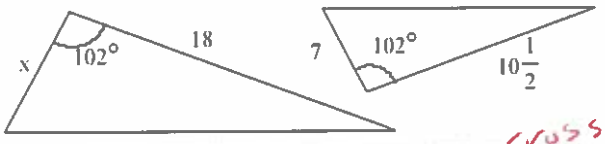
$N = 18$

18
50 | 900
−(50)
400
−(400)
0 rem

n = [ ]

Answer: 18

60. Given that the pair of triangles is similar, find the unknown length of the side labeled with a variable.



rewrite → 7, 102, 10½

The unknown length is [ ] unit(s).

$\frac{x}{18} = \frac{7}{10\frac{1}{2}}$

$\frac{x}{18} = \frac{7}{10.5}$

$x(10.5) = 18(7)$

$10.5x = 126$

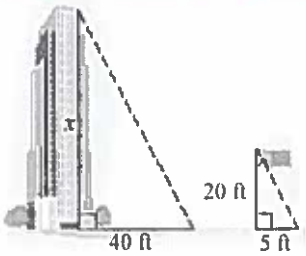
$\frac{10.5x}{10.5} = \frac{126}{10.5}$

cross mult

$x = 12$

Answer: 12

61. A triangle is formed by the building's height and shadow. Another triangle is formed by the flagpole's height and shadow. Using the following diagram, find the height of the building.



$\frac{x}{40} = \frac{20}{5}$

cross mult

$5(x) = 40(20)$

$5x = 800$

$\frac{5x}{5} = \frac{800}{5}$

$x = 160$

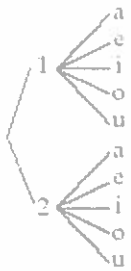
160
5 | 800
−(5)
30
−(30)
00
−00
0

The height of the building is [ ] feet.

Answer: 160

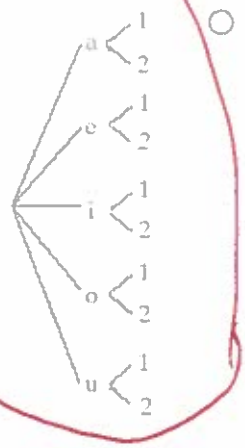
62. Draw a tree diagram for choosing a vowel, (a, e, i, o, u) and then a number (1 or 2). Use the diagram to find the number of possible outcomes.

○ A.

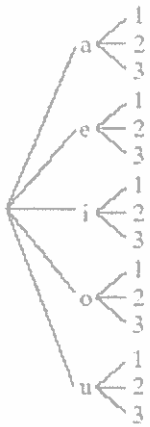


○ B.

◉ C.

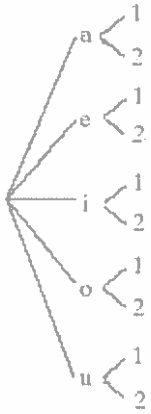


○ D.



Based on the tree, what is the number of possible outcomes? [ ]

Answers

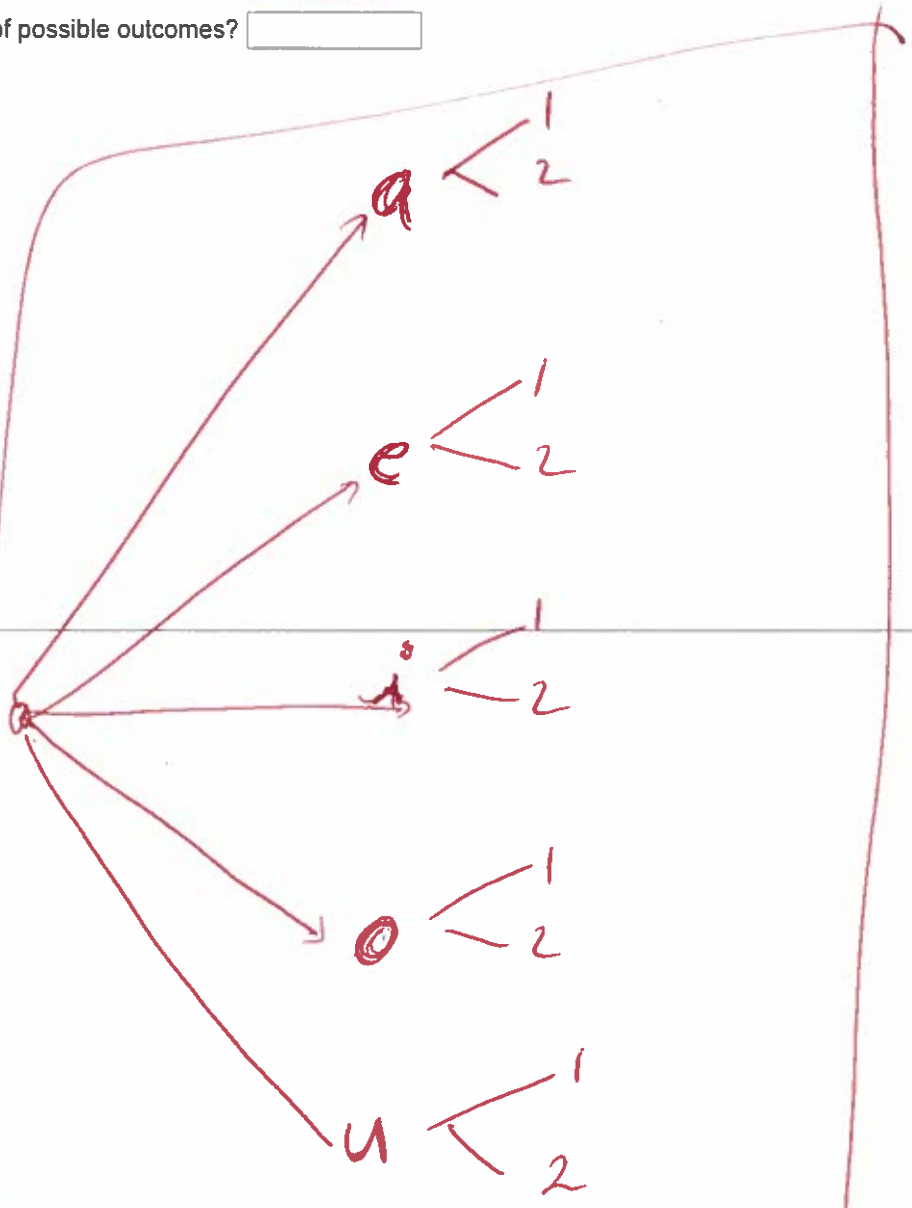


C.

10

(5)(2) =

10 =



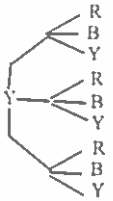
63.

Draw a tree diagram for spinning Spinner A 1 time. Use the diagram to find the number of possible outcomes.

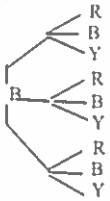
Based on the tree, what is the number of possible outcomes?

Choose the correct tree diagram below.

A.

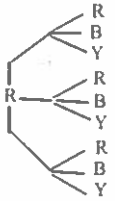


B.



C.

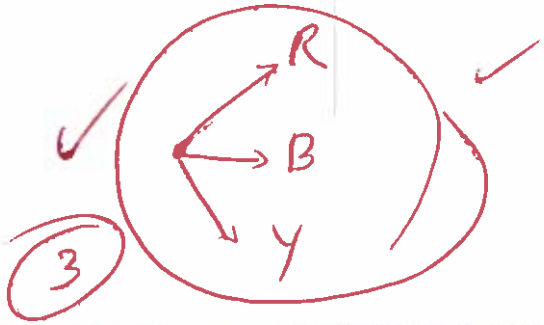
D.



Answers

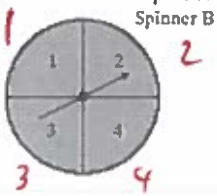
C.

3



64.

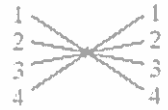
Draw a tree diagram for spinning Spinner B one time. Use the diagram to find the number of possible outcomes.



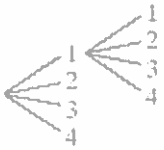
Based on the tree, what is the number of possible outcomes?

Choose the correct tree diagram below.

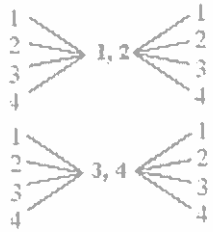
A.



B.



C.

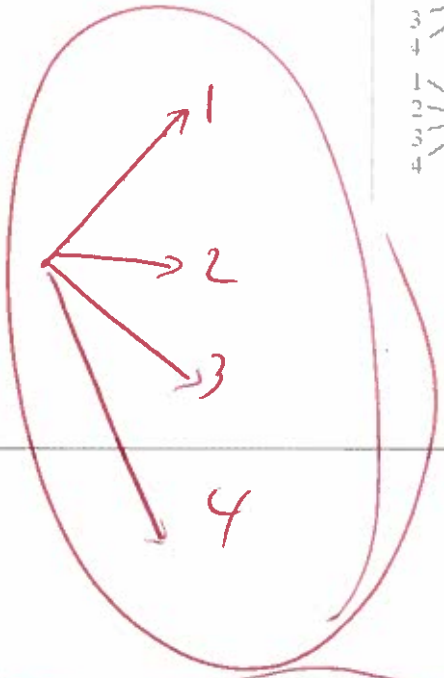


D.

Answers

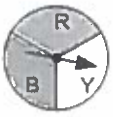
D.

4



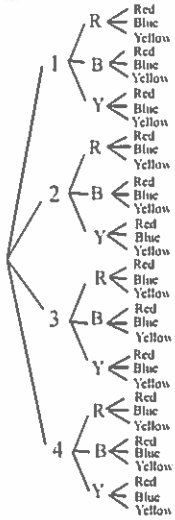
65. Draw a tree diagram for spinning Spinner A two times and then Spinner B two times. Use the diagram to find the number of possible outcomes.

Spinner A

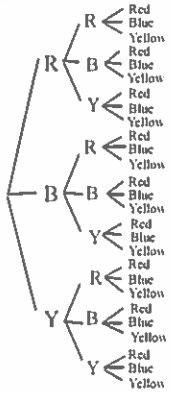


Spinner B

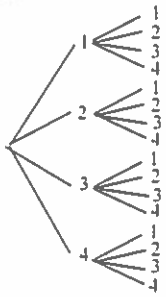
○ A.



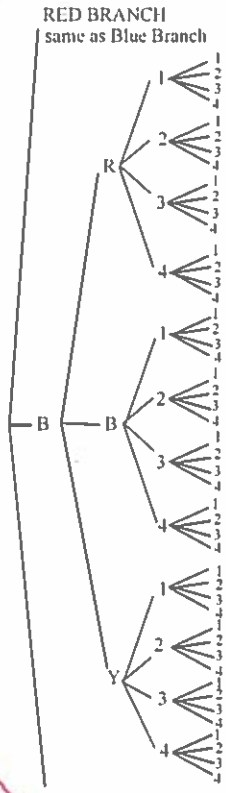
○ B.



○ C.



✓ D.

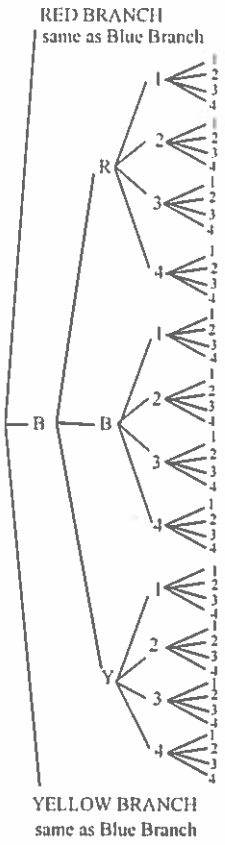


Based on the tree, what is the number of possible outcomes? [ ]

$(3)(3)(4)(4) =$
$9(4)(4) =$
$36(4) =$
$144 =$

36
× 4
144

Answers

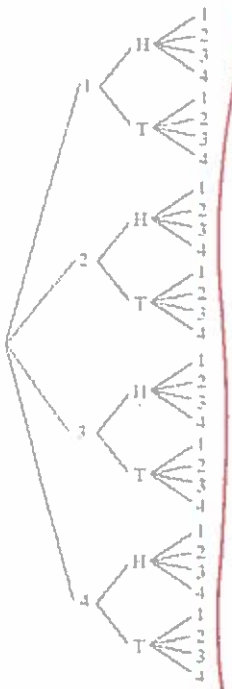


D.

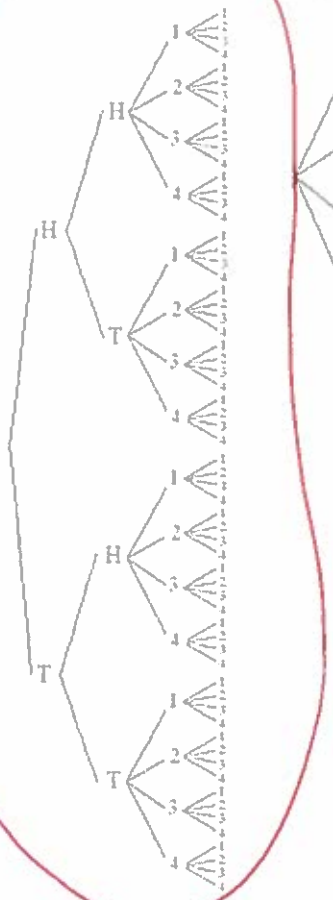
144

66. Draw a tree diagram for tossing a coin two times and spinning Spinner B two times. Use the diagram to find the number of possible outcomes.

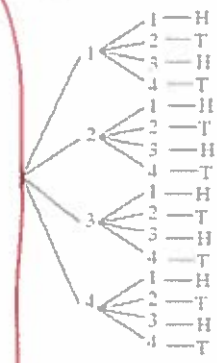
○ A.



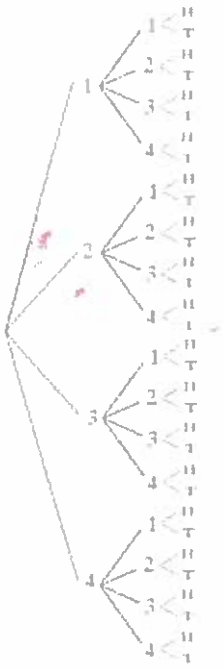
○ B.



○ C.



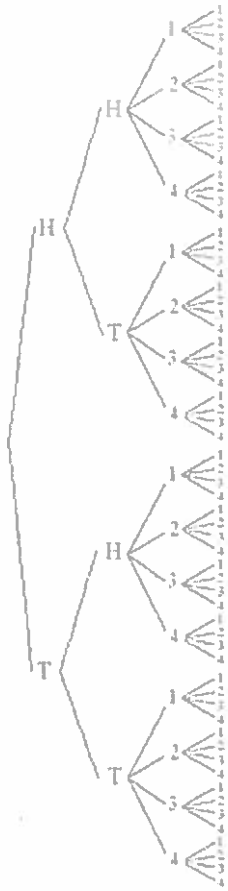
○ D.



Based on the tree, what is the number of possible outcomes? ☐

$(2)(2)(4)(4) =$
$4(4)(4) =$
$16(4) =$
$64 =$

Answers



B.

64

67. If a single 12-sided die is tossed once, find the probability of rolling a 12.

The probability is [ ]. (Type an integer or a simplified fraction.)

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 ✓

$\frac{1}{12}$

Answer: $\frac{1}{12}$

68. If a single 10-sided die is tossed once, find the probability of rolling a 1 or a 5.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

$\frac{2}{10} = \frac{\$(1)}{\$(5)} = \frac{1}{5}$

The probability is [ ]. (Type an integer or a simplified fraction.)

Answer: $\frac{1}{5}$

69. If a single 12-sided die is tossed once, find the probability of rolling an even number.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

$\frac{6}{12} = \frac{\$(1)}{\$(2)} = \frac{1}{2}$

The probability is [ ]. (Type an integer or a simplified fraction.)

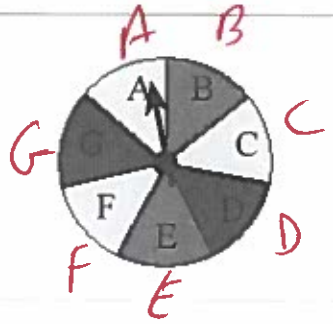
Answer: $\frac{1}{2}$

70. Suppose the spinner shown is spun once. Find the probability of spinning 4.

The probability is ____. (Type an integer or a simplified fraction.)

Answer: $\frac{1}{4}$

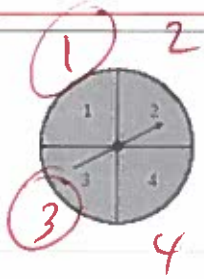
71. Suppose that the spinner shown is spun once. Find the probability of the event that the result of a spin is A, B, C, D, E, F, or G.



The probability is ____. (Simplify your answer.)

Answer: 1

72. Suppose the spinner shown is spun once. Find the probability of spinning an odd number.



The probability is ____. (Type an integer or a simplified fraction.)

Answer: $\frac{1}{2}$

73. A marble is selected at random from a jar containing 6 red marbles, 3 yellow marbles, and 2 green marbles.

What is the probability that the marble is red?

The probability that the marble is red is ____. (Type an integer or a simplified fraction.)

Answer: $\frac{6}{11}$

74. A new drug is being tested that is supposed to lower blood pressure. This drug was given to 200 people and the results are as follows.

Lower Blood Pressure	Higher Blood Pressure	Blood Pressure Not Changed
30	164	6

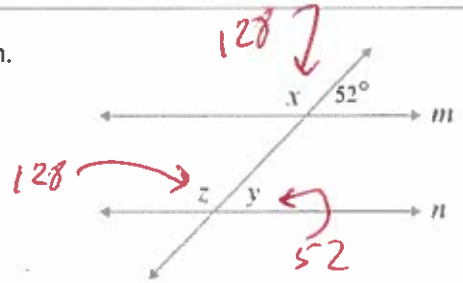
If a person is testing this drug, what is the probability that their blood pressure will be higher?

The probability is [ ]. (Type an integer or a simplified fraction.)

$\frac{164}{200} = \frac{4(41)}{4(50)} = \frac{41}{50} =$

Answer: $\frac{41}{50}$

75. Find the measures of angles x, y, and z in the figure. m||n.



∠x = [ ]°

∠z = [ ]°

∠y = [ ]°

$x + 52 = 180$

$x + 52 - 52 = 180 - 52$

$x = 128$

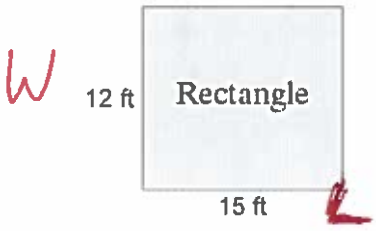
$\angle x = 128$
$\angle z = 128$
$\angle y = 52$

Answers 128

128

52

76. Find the perimeter of the following figure.



$P = 2L + 2W$

$P = 2(15) + 2(12)$

$P = 30 + 24$

$P = 54$

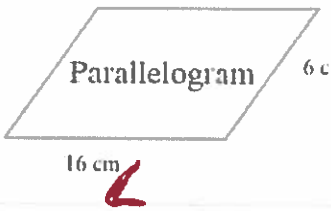
Perimeter = [ ] (1) [ ]

(1) ○ ft
○ sq. ft

Answers 54

(1) ft

77. Find the perimeter of the following figure.



W
L

$P = 2L + 2W$
$P = 2(16) + 2(6)$
$P = 32 + 12$
$P = 44$ answer

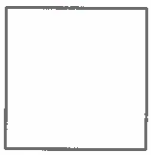
Perimeter = [ ] (1) [ ]

(1) ○ sq. cm
○ cm

Answers 44

(1) cm

78. Find the perimeter of the regular polygon shown to the right.



18
Square
W = 18
18 = L

$P = 2L + 2W$
$P = 2(18) + 2(18)$
$P = 36 + 36$
$P = 72$ answer

OR

$P = 4L$
$P = 4(18)$
$P = 72$

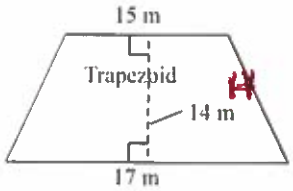
Perimeter = [ ] (1) [ ]

(1) ○ sq in.
○ in.

Answers 72

(1) in.

79. Find the area of the given geometric figure.



b_2 Base
b_1 Base
H

$A = \frac{1}{2}(b_1 + b_2)H$

$A = \frac{1}{2}(17 + 15)(14)$
$A = \frac{1}{2}(32)(14)$
$A = \frac{1}{2}(448)$
$A = 224$ answer

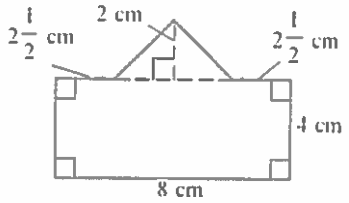
The area of the trapezoid is [ ] (1) [ ]
(Simplify your answer.)

(1) ○ sq m.
○ cu m.
○ m.

Answers 224

(1) sq m.

80. Find the area of the geometric figure.



8 − 2 1/2 − 2 1/2 =
8 − 2.5 − 2.5 =
8 − 5.0 =
8 − 5 =
3 =

The area is ☐ (1) ☐. (Simplify your answer.)

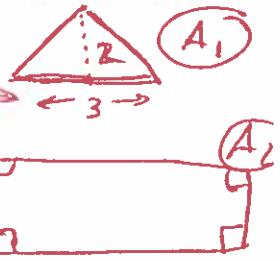
(1) ○ centimeters
○ square centimeters
○ cubic centimeters

Answers 35

(1) square centimeters

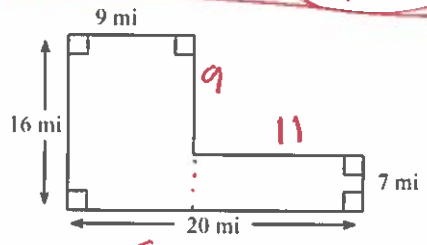
area 1 Triangle
$A_1 = \frac{1}{2}BH$
$A_1 = \frac{1}{2}(3)(2)$
$A_1 = \frac{1}{2}(6)$
$A_1 = \frac{6}{2}$
$A_1 = 3$

area 2 Rectangle
$A_2 = BH$ OR LW
$A_2 = (8)(4)$
$A_2 = 32$



$A_1 + A_2 =$
$3 + 32 = 35$
8

81. Find the area of the given geometric figure.



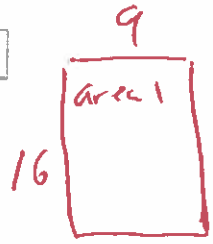
20 − 9 = 11

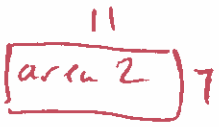
The area of the figure is ☐ (1) ☐
(Simplify your answer.)

(1) ○ mi.
○ sq mi.
○ cu mi.

Answers 221

(1) sq mi.





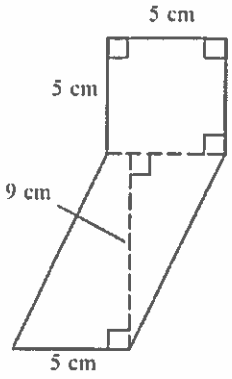
16 − 7 = 9

$A_1 = LW$
$A_1 = (9)(16)$
$A_1 = 144$

$A_2 = LW$
$A_2 = (11)(7)$
$A_2 = 77$

1 1
144
+ 77
221

82. Find the area of the geometric figure.



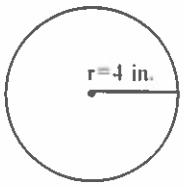
The area is [ ] (1) [ ].
(Simplify your answer.)

(1) ○ centimeters
○ square centimeters
○ cubic centimeters

Answers 70

(1) square centimeters

83. Find the area of the given geometric figure. If the figure is a circle, give an exact area and then use $\frac{22}{7}$ as an approximation for π to approximate the area.



The exact area of the circle is [ ] (1) [ ]
(Simplify your answer. Type an exact answer in terms of π.)

The approximate area is [ ] (2) [ ]
(Simplify your answer. Type an integer, proper fraction, or a mixed number.)

(1) ○ sq in. ○ in. ○ cu in.
(2) ○ cu in. ○ sq in. ○ in.

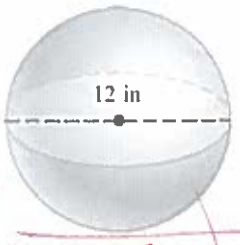
Answers 16π

(1) sq in.

$50\frac{2}{7}$

(2) sq in.

84. Find the volume and surface area of the solid. Give an exact answer and then approximate using $\frac{22}{7}$ for π.



D = 12
$r = \frac{1}{2}D$
$r = \frac{1}{2}(12)$
$r = \frac{12}{2}$
r = 6

$V = \frac{4}{3}\pi r^3$
$V = \frac{4}{3}\pi(6)^3$
$V = \frac{4}{3}\pi(6)(6)(6)$
$V = \frac{4}{3}\pi(216)$
$V = \frac{864\pi}{3}$
$V = 288\pi$

$V = \frac{4}{3}\pi r^3$
$V = \frac{4}{3}(\frac{22}{7})(6)^3$
$V = \frac{4}{3}(\frac{22}{7})(6)(6)(6)$
$V = \frac{4}{3}(\frac{22}{7})(216)$
$V = \frac{19008}{21}$
$V = \frac{3(6336)}{3(7)}$
$V = 905\frac{1}{7}$

The exact volume is [ ] (1) [ ].
(Simplify your answer. Type an exact answer in terms of π.)

The approximate volume is [ ] (2) [ ].
(Simplify your answer.)

The exact surface area is [ ] (3) [ ].
(Simplify your answer. Type an exact answer in terms of π.)

The approximate surface area is [ ] (4) [ ].
(Simplify your answer.)

(1)	(2)	(3)	(4)
○ inches	○ inches	○ inches	○ inches
○ square inches	○ square inches	○ square inches	○ square inches
○ cubic inches	○ cubic inches	○ cubic inches	○ cubic inches

Answers 288π

(1) cubic inches

$905\frac{1}{7}$

(2) cubic inches

144π

(3) square inches

$452\frac{4}{7}$

(4) square inches

$S = 4\pi r^2$
$S = 4\pi(6)^2$
$S = 4\pi(6)(6)$
$S = 4\pi(36)$
$S = 144\pi$

$S = 4\pi r^2$
$S = 4(\frac{22}{7})(6)^2$
$S = \frac{4}{1}(\frac{22}{7})(6)(6)$
$S = \frac{4}{1}(\frac{22}{7})(\frac{36}{1})$
$S = \frac{3168}{7}$
$S = 452\frac{4}{7}$

OR

$S = 452.5714$

85. Find the volume of the solid. Give an exact volume and then approximate using $\frac{22}{7}$ for π.

The exact volume is [ ] (1) [ ].
(Simplify your answer. Type an exact answer in terms of π.)

The approximate volume is [ ] (2) [ ].
(Simplify your answer. Type an integer, fraction, or mixed number.)

(1) ○ inches ○ square inches ○ cubic inches

(2) ○ inches ○ square inches ○ cubic inches

$D = 4$
$r = \frac{1}{2}D$
$r = \frac{1}{2}(4)$
$r = 2$

$V = \pi r^2 H$
$V = \pi (2)^2 (18)$
$V = \pi (2)(2)(18)$
$V = \pi (4)(18)$
$V = \pi (72)$
$V = 72\pi$
Volume

$V = \frac{22}{7} r^2 H$
$V = \frac{22}{7}(2)^2(18)$
$V = \frac{22}{7}(2)(2)(18)$
$V = \frac{22}{7}(4)(18)$
Volume

$V = \frac{22}{7}(72)$
$V = \frac{1584}{7}$
$V = 226\frac{2}{7}$
OR $V = 226.2857$

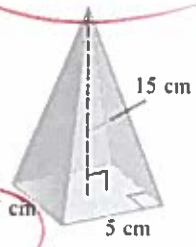
Answers 72π

(1) cubic inches

$226\frac{2}{7}$

(2) cubic inches

86. Find the volume of the solid.



side $s = 5$
$H = 15$

The volume is [ ] (1) [ ]. (Simplify your answer.)

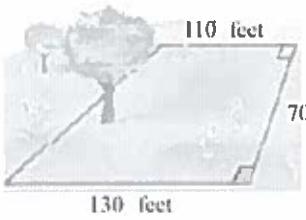
(1) ○ centimeters ○ square centimeters ○ cubic centimeters

$V = \frac{1}{3} s^2 h$
$V = \frac{1}{3}(5)^2(15)$
$V = \frac{1}{3}(5)(5)(15)$
$V = \frac{1}{3}(25)(15)$
$V = \frac{1}{3}(375)$
$V = \frac{375}{3}$
$V = 125$
Volume

Answers 125

(1) cubic centimeters

87. Find how many square feet of land are in the plot shown on the right.



$A = \frac{1}{2}(b_1 + b_2)H$

$A = \frac{1}{2}(130 + 110)70$

$A = \frac{1}{2}(240)(70)$

The area is [ ] square feet.
(Simplify your answer.)

$A = \frac{1}{2}(16800)$

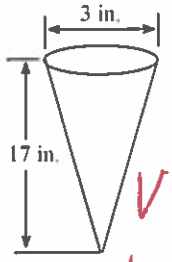
$A = \frac{16800}{2}$

$A = 8400$

Answer: 8400

area

88. Find the exact volume of a waffle ice cream cone with a 3-in. diameter and a height of 17 inches.



$D = 3$

$r = \frac{1}{2}(3)$

$r = \frac{3}{2}$

$r = 1.5$

$V = \frac{1}{3}\pi r^2 h$

$V = \frac{1}{3}\pi (1.5)^2 (17)$

$V = \frac{1}{3}\pi (1.5)(1.5)(17)$

The exact volume of the waffle ice cream cone is [ ] (1) [ ]
(Type an exact answer in terms of π. Use integers or decimals for any numbers in the expression.)

(1) ○ sq in.
○ in.
○ cu in.

$V = \frac{1}{3}\pi (2.25)(17)$

$V = \frac{1}{3}\pi (38.25)$

$V = \frac{38.25\pi}{3}$

$V = 12.75\pi$

Answers 12.75π

(1) cu in.

volume

89. A computer has shape of a rectangular solid. Find the volume of the computer, with dimensions of 4 inches by 4 inches by 4.8 inches.

$L = 4,\ W = 4,\ H = 4.8$

$V = LWH$

$V = (4)(4)(4.8)$

$V = 16(4.8)$

$V = 76.8$

4
4.8
×16
288
48
76.8

The volume of the computer is [ ] (1) [ ]
(Simplify your answer. Type an integer or a decimal.)

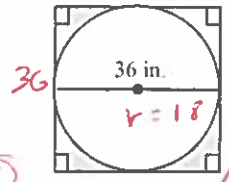
(1) ○ in.
○ cu in.
○ sq in.

Answers 76.8

(1) cu in.

volume

90. Find the area of the shaded region. Use the approximation 3.14 for π.



The area of the shaded region is approximately ____ (1) ____
(Simplify your answer. Type an integer or a decimal.)

(1) ○ in.
○ cu in.
○ sq in.

Answers 278.64

(1) sq in.

$D = 36$
$r = \frac{1}{2}D$
$r = \frac{1}{2}(36)$
$r = \frac{36}{2}$
$r = 18$

$A_1 = LW$ area of square
$L = 36$
$W = 36$
$A_1 = (36)(36)$
$A_1 = 1296$

$A_2 = \pi r^2$
$A_2 = 3.14r^2$
$A_2 = 3.14(18)^2$
$A_2 = 3.14(18)(18)$
$A_2 = 3.14(324)$
$A_2 = 1017.36$

$r = 18$

Subtract areas
$A_1 - A_2$
$1296.00 - 1017.36$
278.64 Shaded area ANSWER

91. Solve the equation.

$-3y + 3 = -3(2y + 4)$

$-3y + 3 = -3(2y+4)$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ A. y = ____ (Type an integer or a simplified fraction.)
○ B. The solution is all real numbers.
○ C. There is no solution.

Answer: A. y = −5 (Type an integer or a simplified fraction.)

$-3y + 3 = -6y - 12$
$-3y + 3 - 3 = -6y - 12 - 3$
$-3y = -6y - 15$
$-3y + 6y = -6y - 15 + 6y$
$3y = -15$
$\frac{3y}{3} = \frac{-15}{3}$
$y = -5$

92. Solve the equation.

$18x - 7 = 5 + 16x$

$18x - 7 = 5 + 16x$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ A. x = ____
○ B. The solution is all real numbers.
○ C. There is no solution.

Answer: A. x = 6

$18x - 7 + 7 = 5 + 16x + 7$
$18x = 16x + 12$
$18x - 16x = 16x + 12 - 16x$
$2x = 12$
$\frac{2x}{2} = \frac{12}{2}$
$x = 6$

93. Solve the equation.

$-3(3x-8)=3x$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ A. x = _____ (Simplify your answer.)
- ○ B. The solution is all real numbers.
- ○ C. There is no solution.

Answer: A. x = 2 (Simplify your answer.)

$-3(3x-8)=3x$
$-9x+24=3x$
$-9x+24-24=3x-24$
$-9x=3x-24$
$-9x-3x=3x-24-3x$
$-12x=-24$
$\frac{-12x}{-12}=\frac{-24}{-12}$
$x=2$

94. Solve the equation for x.

$3(x-4)-4=-16$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ A. x = _____ (Simplify your answer. Type an integer or a fraction.)
- ○ B. The solution is all real numbers.
- ○ C. There is no solution.

Answer: A. x = 0 (Simplify your answer. Type an integer or a fraction.)

$3(x-4)-4=-16$
$3x-12-4=-16$
$3x-16=-16$
$3x-16+16=-16+16$
$3x=0$
$\frac{3x}{3}=\frac{0}{3}$
$x=0$

95. Solve the equation.

$9-2(a-1)=8+a$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ A. a = _____ (Simplify your answer. Type an integer or a fraction.)
- ○ B. The solution is all real numbers.
- ○ C. There is no solution.

Answer: A. a = 1 (Simplify your answer. Type an integer or a fraction.)

$9-2(a-1)=8+a$
$9-2a+2=8+a$
$-2a+11=8+a$
$-2a+11-11=8+a-11$
$-2a=a-3$
$-2a-a=a-3-a$
$-3a=-3$
$\frac{-3a}{-3}=\frac{-3}{-3}$
$a=1$

96. Solve the equation.

$-2y-9=4y+15$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ A. y = _____ (Type an integer or a simplified fraction.)
- ○ B. The solution is all real numbers.
- ○ C. There is no solution.

Answer: A. y = −4 (Type an integer or a simplified fraction.)

$-2y-9=4y+15$
$-2y-9+9=4y+15+9$
$-2y=4y+24$
$-2y-4y=4y+24-4y$
$-6y=24$
$\frac{-6y}{-6}=\frac{24}{-6}$
$y=-4$

97. Solve the equation.

$$\frac{2}{5}x + \frac{4}{5} = -\frac{4}{5}$$

Mult by LCD 5

$\frac{2x}{5}(5) + \frac{4}{5}(5) = -\frac{4}{5}(5)$

$2x(1) + 4(1) = -4(1)$

$2x + 4 = -4$

$2x + 4 - 4 = -4 - 4$

$2x = -8$

$\frac{2x}{2} = \frac{-8}{2}$

$x = -4$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. x = _____
- B. The solution is all real numbers.
- C. There is no solution.

Answer: A. x = −4

98. Solve the equation.

$0.10x + 0.25(70) = 25.5$

$0.10x + 17.5 = 25.5$

$0.10x + 17.5 - 17.5 = 25.5 - 17.5$

$0.10x = 8$

$\frac{0.10x}{0.10} = \frac{8}{0.10}$

$x = 80$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. x = _____
- B. The solution is all real numbers.
- C. There is no solution.

Answer: A. x = 80

99. Solve the equation for x.

$3(3x - 1) = 9x - 3$

$9x - 3 = 9x - 3$

$9x - 9x + 3 = 9x - 9x + 3$

$9x = 9x$

$9x - 9x = 9x - 9x$

$0 = 0$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. x = _____ (Type an integer or a fraction. Simplify your answer.)
- B. The solution is all real numbers.
- C. There is no solution.

Answer: B. The solution is all real numbers.

the solution is all real numbers.

100. Solve the equation for x.

$2x + 1 = 2(x + 4)$

$2x + 1 = 2x + 8$

$2x + 1 - 1 = 2x + 8 - 1$

$2x = 2x + 7$

$2x - 2x = 2x + 7 - 2x$

$0 \neq 7$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. x = _____ (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

Answer: C. There is no solution.

There is no solution.

101. Solve.

$0.4x - 2.4 = 0.4$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. x = _____ (Simplify your answer.)
- B. The solution is all real numbers.
- C. There is no solution.

Answer: A. x = 7 (Simplify your answer.)

$0.4x - 2.4 = 0.4$

$0.4x - 2.4 + 2.4 = 0.4 + 2.4$

$0.4x = 2.8$

$\frac{0.4x}{0.4} = \frac{2.8}{0.4}$

$x = 7$

102. Solve the equation.

$3x - 19 = 2x - 19$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. x = _____
- B. The solution is all real numbers.
- C. There is no solution.

Answer: A. x = 0

$3x - 19 = 2x - 19$

$3x - 19 + 19 = 2x - 19 + 19$

$3x = 2x$

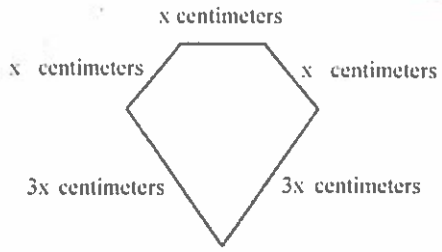
$3x - 2x = 2x - 2x$

$1x = 0$

$\frac{1x}{1} = \frac{0}{1}$

$x = 0$

103. The perimeter of a geometric figure is the sum of the lengths of its sides. The perimeter of the pentagon (five-sided figure) on the right is 45 centimeters.
a. Write an equation for perimeter.
b. Solve the equation in part (a).
c. Find the length of each side.



a. Choose the correct answer below.

- A. $x + x + x + x + x = 45$
- B. $x + x + x + 3x + 3x = 45$
- C. $x + x + x + 3x + 3x = 9$
- D. $9x^5 = 45$

$x+x+x+3x+3x=45$
$1x+1x+1x+3x+3x=45$
$9x=45$
$\frac{9x}{9}=\frac{45}{9}$
$x=5$

b. x = [ ] (Simplify your answer.)

c. The shorter sides have a length of [ ] (1) [ ] (Simplify your answer.)

The longer sides have a length of [ ] (2) [ ] (Simplify your answer.)

(1) cm. cm^2. (2) cm. cm^2.

Short side $x=5$
Long side $3x=3(5)=15$

Answers B. $x + x + x + 3x + 3x = 45$
5
5
(1) cm.
15
(2) cm.

104. A toy ball in the shape of a sphere expands and contracts. When it is completely closed, it has a diameter of 23.5 inches. Find the volume of the sphere when it is completely closed. Use 3.14 for π.
(Hint: the volume of a sphere of radius r is $\frac{4}{3}\pi r^3$.)

$D=23.5$
$V=\frac{4}{3}\pi r^3$
$V=\frac{4}{3}(3.14)(11.75)^3$
$V=\frac{4}{3}(3.14)(1622.234375)$
$r=\frac{1}{2}D$
$r=\frac{1}{2}(23.5)$
$r=\frac{23.5}{2}$
$r=11.75$
$V=\frac{4}{3}(5093.815938)$
$V=(4/3)(5093.815938)$
$V=6791.754584$
$V=6792$ round

The volume of the sphere is approximately [ ] (1) [ ]
(Round to the nearest whole number as needed.)

(1) sq in.
in.
cu in.

Answers 6792
(1) cu in.

105. Substitute the given values into the given formula and solve for the unknown variable.

$V = \frac{4}{3}\pi r^3$, $r = 2$ (Volume of a sphere) (Use a calculator approximation for π.)

$V \approx$ [ ]. (Type an integer or a decimal. Round to the nearest tenth as needed.)

Answer: 33.5

$V = \frac{4}{3}\pi r^3$

$V = \frac{4}{3}(3.14)(2)^3$

$V = \frac{4}{3}(3.14)(2)(2)(2)$

$V = \frac{4}{3}(3.14)(8)$

$V = \frac{4}{3}(25.12)$

$V = (\frac{4}{3})(25.12)$

$V = 33.49333$

$V = 33.5$

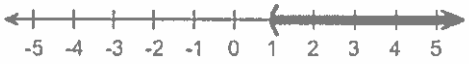
106. Graph an inequality on the number line. Then write the solution in interval notation.

$x - 4 \geq -3$

Graph the inequality on the number line. Choose the correct number line below.

A. 

B. 

C. 

D. 

E. 

F. 

The solution to the inequality $x - 4 \geq -3$ is [ ].
(Type your answer in interval notation.)

Answers

E. 

$[1, \infty)$

$x - 4 \geq -3$

$x - 4 + 4 \geq -3 + 4$

$x \geq 1$

$[1, \infty)$

107. Solve the inequality. Graph the solution set and write it in interval notation.

$5x < -30$

Choose the correct graph below.

○ A. 

○ B. 

○ C. 

○ D. 

○ E. 

○ F. 

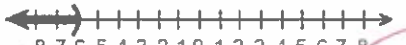
The solution to the inequality $5x < -30$ is [ ].
(Type your answer in interval notation.)

$5x < -30$

$\frac{5x}{5} < \frac{-30}{5}$

$x < -6$

Answers

A. 

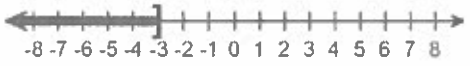
$(-\infty, -6)$

$(-\infty, -6)$

108. Solve the inequality. Graph the solution set and write it in interval notation.

$-8x \leq 24$

Choose the correct graph below.

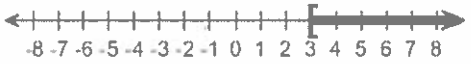
○ A. 

○ B. 

○ C. 

○ D. 

○ E. 

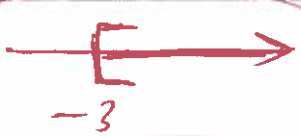
○ F. 

The solution to the inequality $-8x \leq 24$ is [ ].
(Type your answer in interval notation.)

$-8x \leq 24$

$\frac{-8x}{-8} \geq \frac{24}{-8}$

$x \geq -3$



$[-3, \infty)$

Answers

D. 

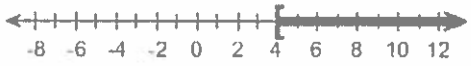
$[-3, \infty)$

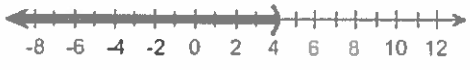
109. Solve the inequality. Graph the solution set and write it in interval notation.

$-0.9y < -4.5$

Choose the correct graph below.

A. 

B. 

C. 

D. 

The solution set in interval notation is [ ].

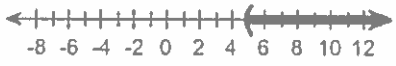
$-0.9y < -4.5$

$\frac{-0.9y}{-0.9} > \frac{-4.5}{-0.9}$

$y > 5$

$(5, \infty)$

Answers

A. 

$(5, \infty)$

110. Solve the inequality. Write the solution set in interval notation.

$-4 < x + 5$

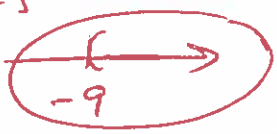
The solution in interval notation is [ ].

$-4 < x + 5$

$-4 - 5 < x + 5 - 5$

$-9 < x$ or $x > -9$

$(-9, \infty)$



Answer: $(-9, \infty)$

111. Solve the inequality.

$4x - 3 < 7x + 3$

The solution set is [ ]. (Type your answer in interval notation.)

$4x - 3 + 3 < 7x + 3 + 3$

$4x < 7x + 6$

$4x - 7x < 7x + 6 - 7x$

$-3x < 6$

$\frac{-3x}{-3} > \frac{6}{-3}$

$x > -2$

$(-2, \infty)$

Answer: $(-2, \infty)$

112. Solve the inequality.

$-4x + 2 \geq 2(3 - x)$

The solution set is [ ]. (Type your answer in interval notation.)

$-4x + 2 \geq 6 - 2x$

$-4x + 2 - 2 \geq 6 - 2x - 2$

$-4x \geq -2x + 4$

$-4x + 2x \geq -2x + 4 + 2x$

$-2x \geq 4$

$\frac{-2x}{-2} \leq \frac{4}{-2}$

$x \leq -2$

$(-\infty, -2]$

Answer: $(-\infty, -2]$

113. Solve the inequality.

$8(6x - 1) \leq 23(2x - 2)$

The solution set is [ ]. (Type your answer in interval notation.)

$8(6x - 1) \leq 23(2x - 2)$

$48x - 8 \leq 46x - 46$

$48x - 46x - 8 + 8 \leq 46x - 46x - 46 + 8$

$2x \leq -38$

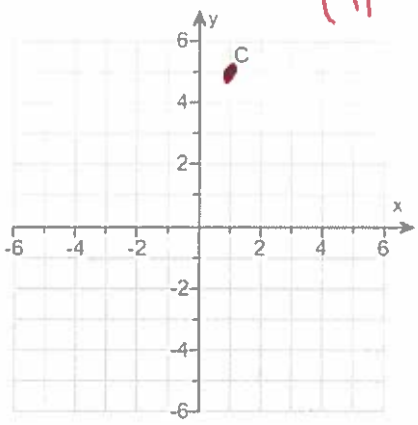
$\frac{2x}{2} \leq \frac{-38}{2}$

$x \leq -19$

$(-\infty, -19]$

Answer: $(-\infty, -19]$

114. Find the x- and y-coordinates of the point C.



(1, 5)

The coordinates of C are ____.
(Type an ordered pair.)

Answer: (1,5)

(1, 5)

right 1 →

up 5 ↑

115.

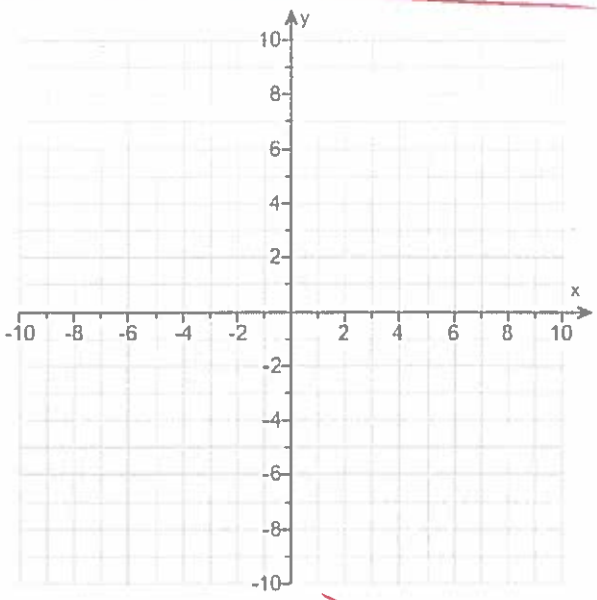
For the equation, find three ordered pair solutions by completing the table. Then use any two of the ordered pairs to graph the equation.

$y = \frac{1}{3}x$

Complete the table below.

x	y
0	0
3	1
−6	−2

Use the graphing tool to graph the equation.



Points
(0, 0)
(3, 1)
(−6, −2)

$y = \frac{1}{3}x$

$y = \frac{1}{3}(-6)$

$y = \frac{-6}{3}$

$y = -2$

$y = \frac{1}{3}(0)$

$y = \frac{0}{3}$

$y = 0$

$y = \frac{1}{3}(3)$

$y = \frac{3}{3}$

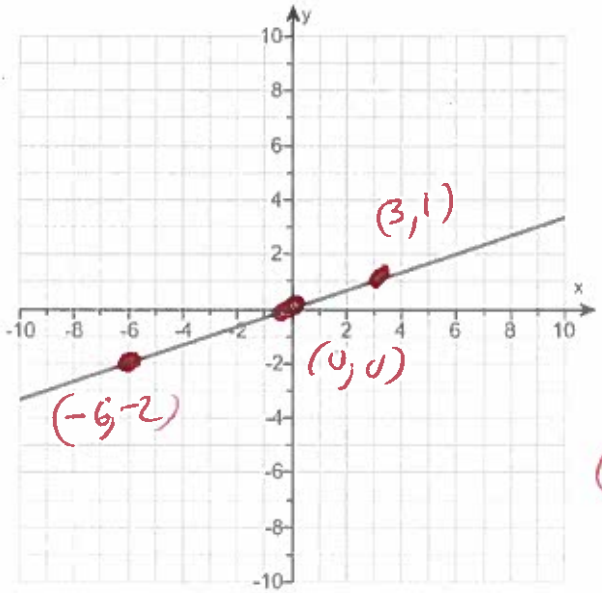
$y = 1$

x	y
−6	−2
0	0
3	1

Answers 0

1

−2



116.

For the following equation, find three ordered pair solutions by completing the table. Then use the ordered pairs to graph the equation.

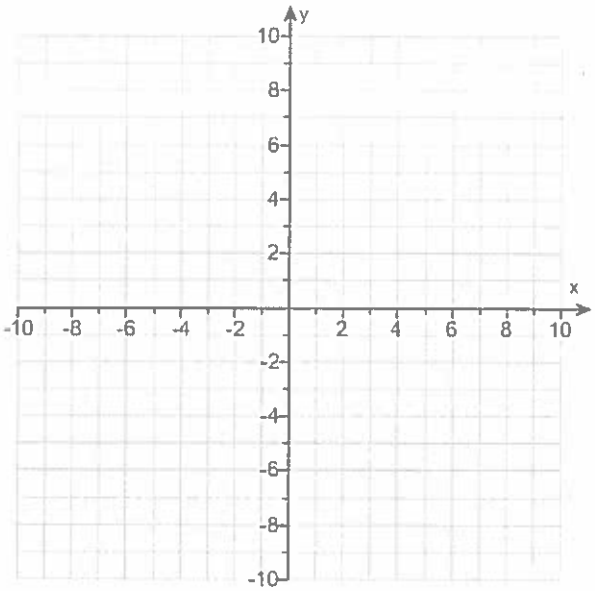
$y = -3x + 1$

Find three ordered pair solutions of the given equation.

x	y
0	1
1	-2
2	-5

Points
(0, 1)
(1, -2)
(2, -5)

Use the graphing tool to graph the line.



$y = -3x + 1$
$y = -3(0) + 1$
$y = 0 + 1$
$y = 1$

x	y
0	1
1	-2
2	-5

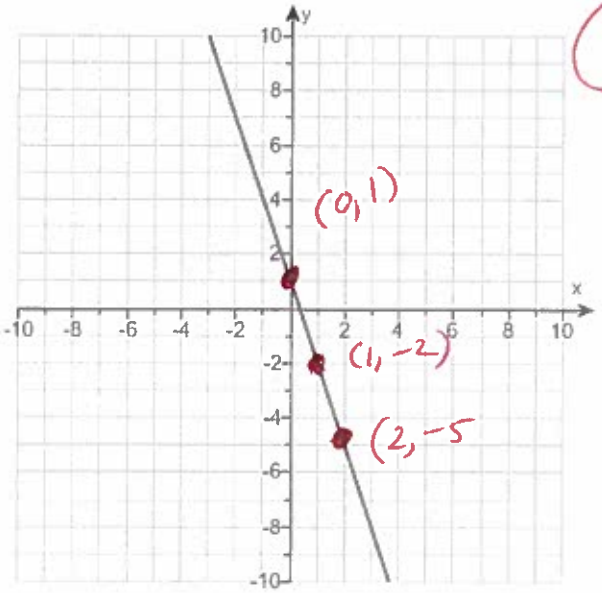
$y = -3(1) + 1$
$y = -3 + 1$
$y = -2$

$y = -3(2) + 1$
$y = -6 + 1$
$y = -5$

Answers 1

-2

-5



117.

Graph the equation.

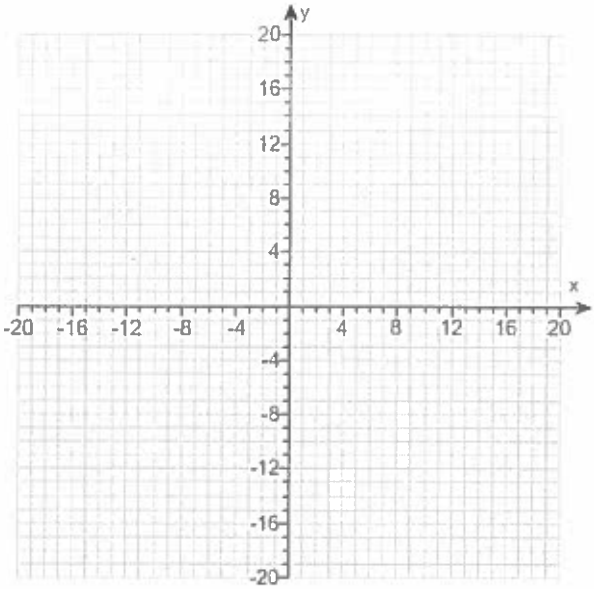
$y = 3x + 4$

Use the graphing tool to graph the line.

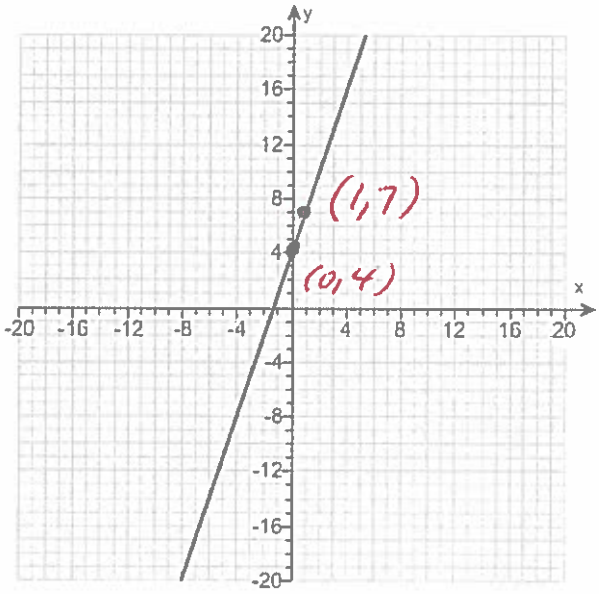
Points

(0, 4)

(1, 7)



Answer:



$y = 3x + 4$

$y = 3(0) + 4$

$y = 0 + 4$

$y = 4$

x	y
0	4
1	7

$y = 3(1) + 4$

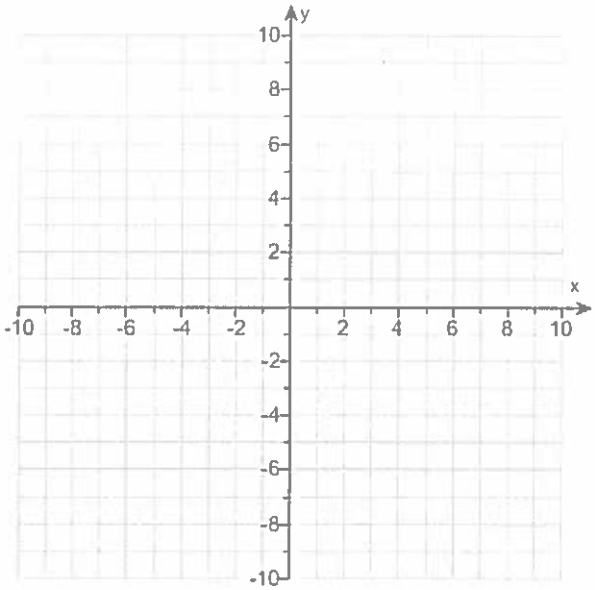
$y = 3 + 4$

$y = 7$

118. Graph the linear equation.

$y = 1.5x - 2$

Use the graphing tool to graph the equation.

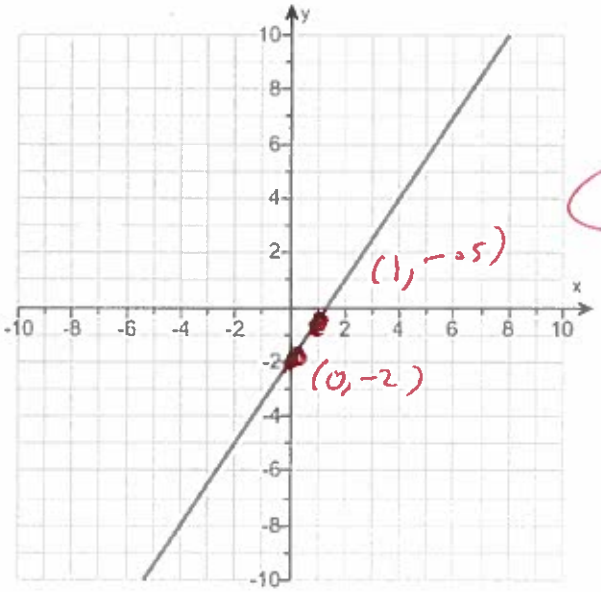


Points
(0, −2)
(1, −.5)

$y = 1.5x - 2$
$y = 1.5(0) - 2$
$y = 0 - 2$
$y = -2$

x	y
0	−2
1	−.5

Answer:



$y = 1.5x - 2$
$y = 1.5(1) - 2$
$y = 1.5 - 2.0$
$y = -.5$

119. Find the slope of the line that goes through the given points.

$m = \frac{y_1 - y_2}{x_1 - x_2} = \frac{(6) - (9)}{(-3) - (-6)}$

$m = \frac{6 - 9}{-3 + 6}$

$m = \frac{-3}{3}$

$m = -1$

(−3, 6) and (−6, 9)

$x_1\ y_1$ $x_2\ y_2$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

A. The slope is _____. (Type an integer or a simplified fraction.)

B. The slope is undefined.

Answer: A. The slope is **−1**. (Type an integer or a simplified fraction.)

120. Find the slope of the line that goes through the given points.

$m = \frac{y_1 - y_2}{x_1 - x_2} = \frac{(-10) - (3)}{(-4) - (-4)}$

(−4, −10) and (−4, 3)

$x_1\ y_1\ x_2\ y_2$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$= \frac{-10-3}{-4+4}$

$= \frac{-13}{0}$

= undefined

- A. The slope is _____. (Type an integer or a fraction. Simplify your answer.)
- B. The slope is undefined.

Answer: B. The slope is undefined.

---

121. Find the slope of the line that goes through the given points.

$m = \frac{y_1 - y_2}{x_1 - x_2} = \frac{(-8) - (5)}{(1) - (-2)}$

(1, −8) and (−2, 5)

$x_1\ y_1\ x_2\ y_2$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$= \frac{-8-5}{1+2}$

$m = \frac{-13}{3}$

- A. The slope is _____. (Simplify your answer.)
- B. The slope is undefined.

Answer: A. The slope is $-\frac{13}{3}$. (Simplify your answer.)

---

122. Find the slope of the line that goes through the given points.

$m = \frac{y_1 - y_2}{x_1 - x_2} = \frac{(1) - (1)}{(6) - (4)}$

(6,1) and (4,1)

$x_1\ y_1\ x_2\ y_2$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$= \frac{1-1}{6-4}$

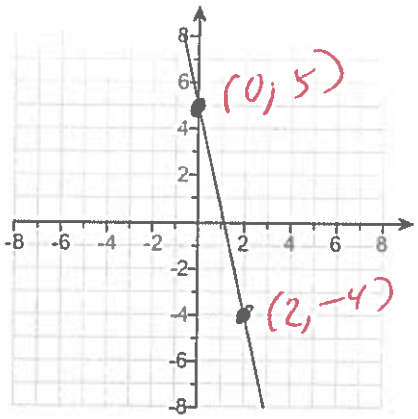
$m = \frac{0}{2}$

- A. The slope is _____. (Type an integer or a simplified fraction.)
- B. The slope is undefined.

Answer: A. The slope is 0. (Type an integer or a simplified fraction.) $m = 0$

123.

Find the slope of the line if it exists.



Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The slope is _____. (Simplify your answer. Type an integer or a fraction.)
- B. The slope is undefined.

$(0,5)\ (2,-4)$ $m = \frac{y_1 - y_2}{x_1 - x_2}$

$x_1\ y_1\ \ x_2\ y_2$

$m = \frac{(5) - (-4)}{(0) - (2)}$

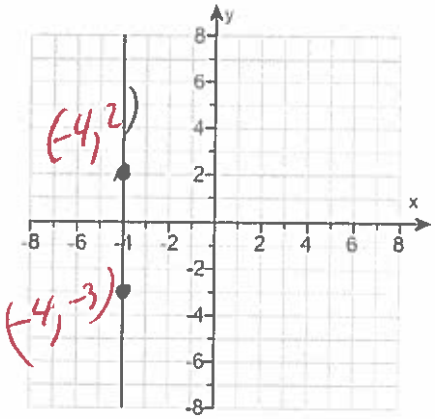
$m = \frac{5+4}{0-2}$

$m = \frac{9}{-2}$

Answer: A. The slope is $-\frac{9}{2}$. (Simplify your answer. Type an integer or a fraction.)

124.

Find the slope of the line if it exists.



Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The slope is _____. (Type an integer or a simplified fraction.)
- B. The slope is undefined.

$(-4,2)\ (-4,-3)$ $m = \frac{y_1 - y_2}{x_1 - x_2}$

$x_1\ y_1\ \ x_2\ y_2$

$m = \frac{(2) - (-3)}{(-4) - (-4)}$

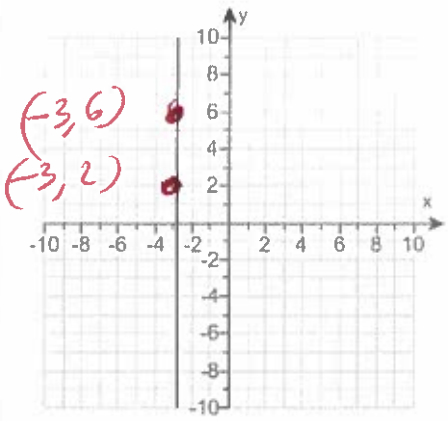
$m = \frac{2+3}{-4+4}$

$m = \frac{5}{0}$

undefined

Answer: B. The slope is undefined.

125. For the graph on the right, determine if the slope is positive, negative, zero, or undefined.



(-3, 6) (-3, 2)
x_1 y_1 x_2 y_2

Choose the correct slope.

- A. Zero
- B. Undefined
- C. Negative
- D. Positive

$m = \frac{y_1 - y_2}{x_1 - x_2}$

$m = \frac{(6)-(2)}{(-3)-(-3)}$

$m = \frac{6-2}{-3+3}$

$m = \frac{4}{0}$ undefined

Answer: B. Undefined

126. Find the domain and the range of the given relation.

{(5, − 9), (− 8, − 2), (− 3, − 6), (− 6, − 3)}

The domain is { }. (Use a comma to separate answers as needed.)

The range is { }. (Use a comma to separate answers as needed.)

(5, -9) (-8, -2) (-3, -6) (-6, -3)

domain = {5, -8, -3, -6}

Range = {-9, -2, -6, -3}

Answers 5, − 8, − 3, − 6

− 9, − 2, − 6, − 3

127. Find the domain and the range of the relation.

{(− 7,5),(− 6,5),(− 1,5)}

(-7, 5) (-6, 5) (-1, 5)

What is the domain of the given relation?

{ } (Use a comma to separate answers as needed.)

What is the range of the given relation?

{ } (Use a comma to separate answers as needed.)

domain = {-7, -6, -1}

range = {5}

Answers − 7, − 6, − 1

5

128. Determine if the given relation is also a function.

{(6,8), (−7,−2), (7,7), (−4,−3)}

Is the relation a function?

- ○ Yes
- ○ No

Answer: Yes

Yes Good (−7,−2) Good (7,7) Good (−4,−3)

YES a function

129. Determine if the given relation is also a function.

{(9,8), (9,−2), (9,7)}

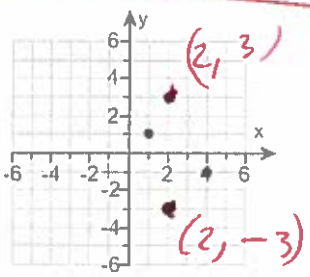
Is the relation a function?

- ○ No
- ○ Yes

Answer: No

NOT a function since (9,8) and (9,−2) (9,7) x=9 goes to three different y₂

130. Determine whether the graph on the right is the graph of a function.



(2, 3) and (2, −3)

Since x=2 goes to 3 and −3

NOT a function

Is the given graph the graph of a function?

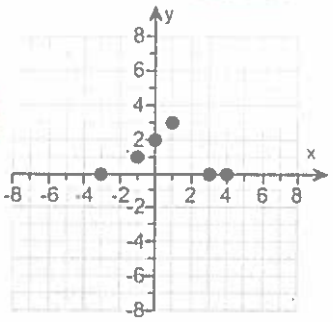
- ○ No
- ○ Yes

Answer: No

131.

Determine whether the graph is the graph of a function.

YES a function



Is the given graph the graph of a function?

(-3,0) (-1,1) (0,2) (1,3) (3,0) (4,0)

- ○ No
- ○ Yes

Answer: Yes

132.

Use the vertical line test to determine whether the given graph is the graph of a function.

since all vertical line intersect the graph only one time this is a function

Is the graph the graph of a function? Choose the correct answer below.

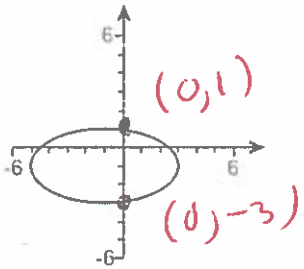
YES a function

- ○ No
- ○ Yes

Answer: Yes

---

133. Use the vertical line test to determine whether the given graph is the graph of a function.



NOT a function since (0,1) and (0,-3) 0 goes to two different numbers

Is the graph the graph of a function? Choose the correct answer below.

- ○ Yes
- ○ No

Answer: No

134. Given the following function, find f(−4), f(0), and f(5).

f(x) = 4x + 2

f(−4) = ____

f(0) = ____

f(5) = ____

f(x) = 4x + 2
f(−4) = 4(−4) + 2
f(−4) = −16 + 2
f(−4) = −14

f(x) = 4x + 2
f(0) = 4(0) + 2
f(0) = 0 + 2
f(0) = 2

f(x) = 4x + 2
f(5) = 4(5) + 2
f(5) = 20 + 2
f(5) = 22

Answers −14

2

22

135. Given the following function, find f(−3), f(0), and f(4).

f(x) = $x^2 - 3$

f(−3) = ____

f(0) = ____

f(4) = ____

f(x) = $x^2 - 3$
f(−3) = $(-3)^2 - 3$
f(−3) = (−3)(−3) − 3
f(−3) = 9 − 3
f(−3) = 6

f(x) = $x^2 - 3$
f(0) = $(0)^2 - 3$
f(0) = (0)(0) − 3
f(0) = 0 − 3
f(0) = −3

f(x) = $x^2 - 3$
f(4) = $(4)^2 - 3$
f(4) = (4)(4) − 3
f(4) = 16 − 3
f(4) = 13

Answers 6

−3

13

136. Find f(− 1), f(0) and f(3) for the following function.

f(x) = − 2x

f(− 1) = ____

f(0) = ____

f(3) = ____

Answers 2

0

− 6

137. Find h(− 3), h(0), and h(5) for the following function.

$h(x) = 5x^2 - 5$

h(− 3) = ____ (Simplify your answer.)

h(0) = ____ (Simplify your answer.)

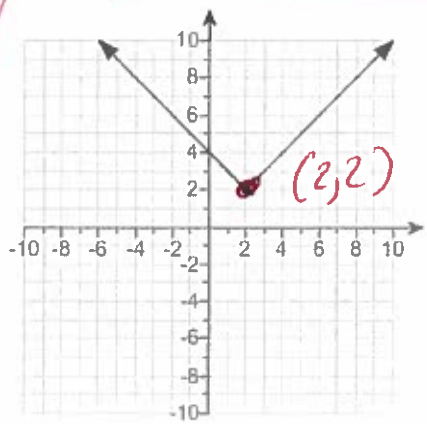
h(5) = ____ (Simplify your answer.)

Answers 40

− 5

120

138. Find the domain and the range of the function graphed to the right.



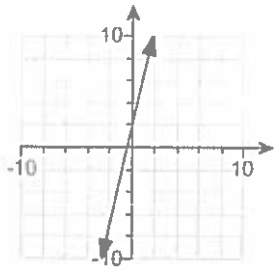
The domain in interval notation is ____.

The range in interval notation is ____.

Answers (− ∞, ∞)

[2, ∞)

139. Find the domain and the range of the function graphed to the right.



domain (left right)
$(-\infty, \infty)$
range (bottom top)
$(-\infty, \infty)$

The domain in interval notation is [ ].

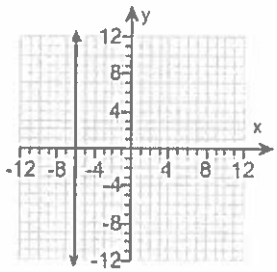
The range in interval notation is [ ].

Answers $(-\infty, \infty)$

$(-\infty, \infty)$

140. domain (left, right)
$\{-6\}$

Find the domain and the range of the relation.



range (bottom, top)
$(-\infty, \infty)$

Choose the correct domain.

- A. $\{-6\}$
- B. $(-\infty, -6) \cup (-6, \infty)$
- C. $(-\infty, \infty)$
- D. None of the above

Choose the correct range.

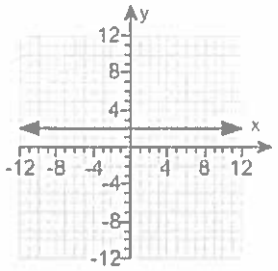
- A. $(-\infty, -6) \cup (-6, \infty)$
- B. $(-\infty, \infty)$
- C. $\{-6\}$
- D. None of the above

Answers A. $\{-6\}$

B. $(-\infty, \infty)$

141. domain (left, right)
$(-\infty, \infty)$

Find the domain and the range of the relation.



range (both, top)
$\{2\}$

Choose the correct domain.

- A. $(-\infty, 2) \cup (2, \infty)$
- B. $(-\infty, \infty)$
- C. $\{2\}$
- D. None of the above

Choose the correct range.

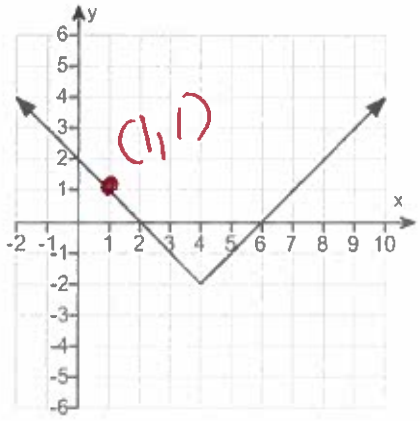
- A. $(-\infty, \infty)$
- B. $\{2\}$
- C. $(-\infty, 2) \cup (2, \infty)$
- D. None of the above

Answers B. $(-\infty, \infty)$

B. $\{2\}$

142. Use the graph to complete the ordered-pair solution (1, _) for f.

(1,)



(1, 1)
right 1, up 1

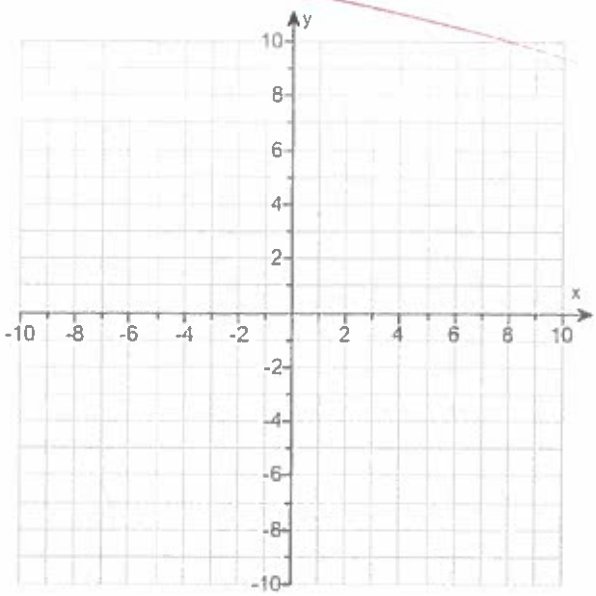
Answer: 1

143.

Graph the linear equation.

$f(x) = 2x$

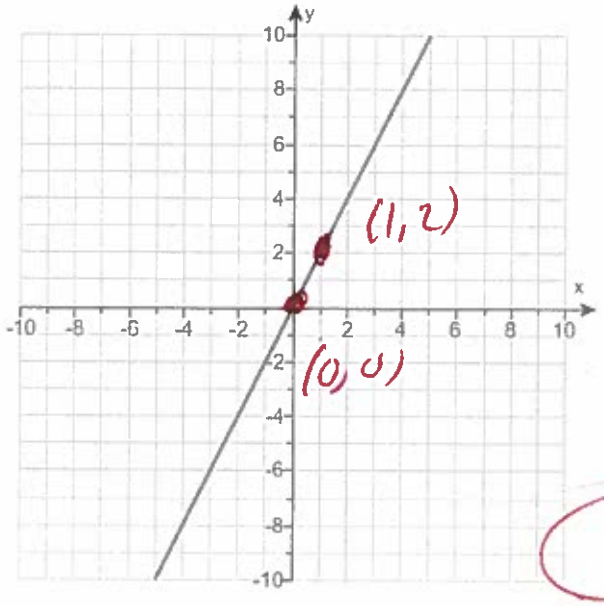
Use the graphing tool to graph the equation.



Points
(0, 0)
(1, 2)

x	f(x)
0	0
1	2

Answer:



$f(x) = 2x$

$f(0) = 2(0)$

$f(0) = 0$

$f(x) = 2x$

$f(1) = 2(1)$

$f(1) = 2$

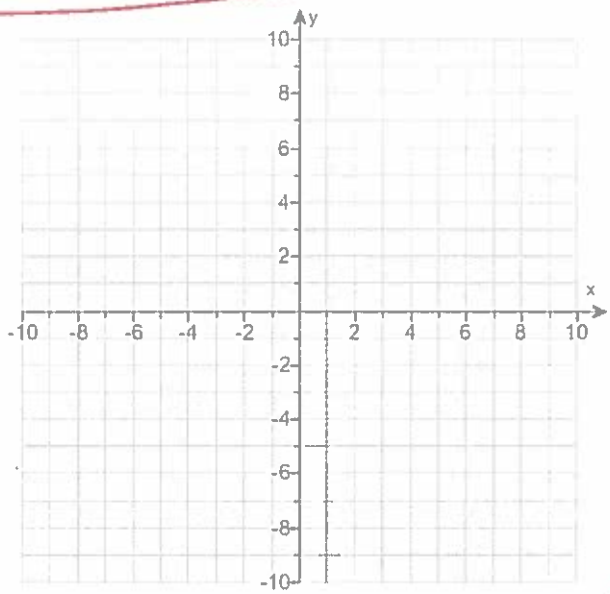
144.

Graph the linear equation.

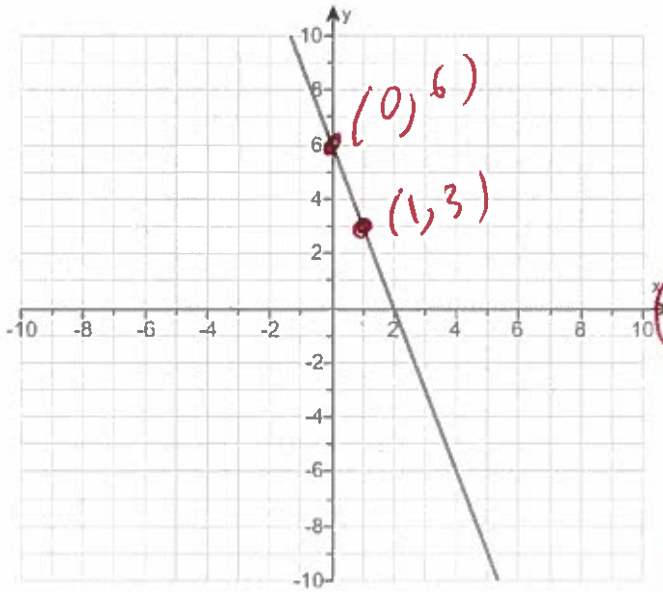
$f(x) = -3x + 6$

Use the graphing tool to graph the linear equation.

Points
(0, 6)
(1, 3)



Answer:



$f(x) = -3x + 6$

$f(0) = -3(0) + 6$

$f(0) = 0 + 6$

$f(0) = 6$

x	f(x)
0	6
1	3

$f(x) = -3x + 6$

$f(1) = -3(1) + 6$

$f(1) = -3 + 6$

$f(1) = 3$

145. Graph the function.

$f(x) = 3x + 1$

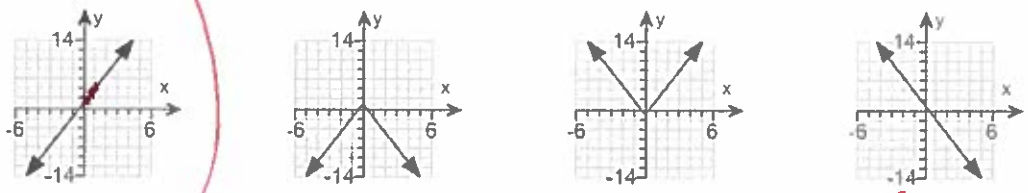
POINTS (0, 1) (1, 4)

x	f(x)
0	1
1	4

$f(x) = 3x + 1$

Choose the correct graph below.

A. B. C. D.



$f(0) = 3(0) + 1$

$f(0) = 0 + 1$

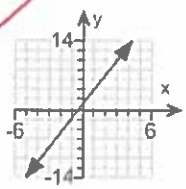
$f(0) = 1$

$f(1) = 3(1) + 1$

$f(1) = 3 + 1$

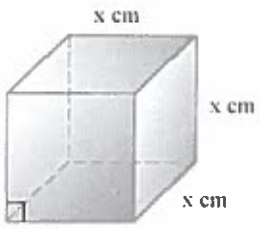
$f(1) = 4$

Answer:



A.

146. The function $V(x) = x^3$ may be used to find the volume of a cube with side length x. Find the volume of a cube whose side is 14 centimeters.



$V(x) = x^3$ $V(14) = (14)^3$

$V(14) = (14)(14)(14)$

$V(14) = 196(14)$

$V(14) = 2744$

The volume is ____ cubic centimeters. (Type an integer or a decimal.)

Answer: 2744

147. If y varies directly as x, find the constant of variation k and the direct variation equation for the situation.

$y = 5$ when $x = 35$

$y = kx$

$5 = k(35)$

$5 = 35k$

$\frac{5}{35} = \frac{35k}{35}$

$\frac{5}{35} = k$

$\frac{5(1)}{5(7)} = k$

Find the constant of variation k.

k = ____ (Type an integer or a fraction. Simplify your answer.)

Complete the direct variation equation given y = 5 when x = 35.

y = ____ (Use integers or fractions for any numbers in the expression.)

Answers $\frac{1}{7}$

$\frac{1}{7}x$

$y = \frac{1}{7}x$ direct variation equation

$k = \frac{1}{7}$ constant

148. The amount P of pollution varies directly with the population N of people. City A has a population of 494,000 and produces 260,000 tons of pollutants. Find how many tons of pollution we should expect City B to produce, if we know that its population is 344,000.

City B produces ____ tons of pollution.
(Do not round until the final answer. Then round to the nearest ton as needed.)

Answer: 181,053

$y = kx$

$260000 = k(494000)$

$\frac{260000}{494000} = \frac{k(494000)}{(494000)}$

$.5263157 = k$

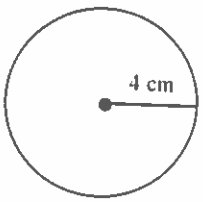
$y = .5263157x$

$y = .5263157(344000)$

$y = 181052.6$

$y = 181053$ round

149. Find the exact circumference and area of the circle.



$r = 4$

The exact circumference is ____ cm.
(Simplify your answer. Type an exact answer, using π as needed.)

The exact area is ____ sq cm.
(Simplify your answer. Type an exact answer, using π as needed.)

Answers 8π

16π

$C = \pi D$

$C = 2\pi r$

$C = 2\pi(4)$

$C = 8\pi$ circumfer

$A = \pi r^2$

$A = \pi(4)$

$A = \pi(4)(4)$

$A = \pi(16)$

$A = 16\pi$ area